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INVESTMENT OPPORTUNITIES AND NEWS **magazine**

AUGUST/SEPTEMBER 2017 | Volume 15 Issue 5

Pure Gold Mining

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**ENERGY ANALYST
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ON OIL & GAS**

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NOMINATIONS CLOSE SEPTEMBER 29, 2017



34

DEPARTMENTS

EDITOR'S COMMENTS 5

Canada a global leader in mining but it's not all roses

by Ellsworth Dickson

COMING EVENTS 76

Advertisers' List 76

EPILOGUE 78

Peak Gold assumptions clouded by market forces

by David Duval

FEATURES

Pure Gold Mining
by Ellsworth Dickson

6

Exploration and Mining
in Québec
by Ellsworth Dickson

10

Local partnerships essential
for mining in Asia
by Robert L. Wallack

22

Erdene Resource finds more
Mongolian gold

24

Yukon Exploration & Mining Tour
by Peter Kennedy

34

Alaska mining and mineral
exploration update
by Robert Simpson

44

Rare Earths – unseen but just about
everywhere
by Ellsworth Dickson

48

Ontario Wawa mining district
update
by Katherine Moore

58

INVESTMENT

SPECULATIONS

Eerily Static Markets
by Leonard Melman

25

INSIGHTS & INVESTMENTS

Black Iron's Shymanivske Project
back on track
by Bob Leshchysen

26

BROKER'S PICKS

Providence Gold Mines – abandoned
and forgotten for 85 years
by Steve Vorberg and Doug Wood

28

AT THE MARKET

Follow the Money
by Rodney Blake

29

Stock Warrants
Great leverage in a bull market
by Dudley Pierce Baker

30

Trading Strategies
Know WHY you own an exploration
company
by Nancy Curry

32

MINING

What reconciliation means for
southeast NWT exploration
by Laura Barker

21

AUSTRALIAN UPDATE

Novo Resource shares soar on gold
nuggets discovery

33

Liberty Silver acquiring Bunker
Hill Mine in Idaho
by Ellsworth Dickson

43

Jaxon Minerals targets
British Columbia prospects
by Jennifer S. Getsinger, PhD

53

Pershing Gold ready to open Relief
Canyon Mine
by Kathrine Moore

54

Voyageur Minerals plans near term
barite production

55

Glen Eagle Resources – gold and industrial minerals an attractive mix
by David Duval

Prize Mining exploring Daylight and Toughnut prospects
by Ellsworth Dickson

Osisko Metals leads staking rush in prolific Bathurst Mining Camp

Newrange expands Pamlico high-grade mineralization
by Thomas Schuster

Silver Bull to drill former Mexican zinc producer
by Ellsworth Dickson

Fiji looking golden for Lion One Metals
by Jennifer Getsinger PhD

GGX Gold:
Past producer yielding good gold assays

MINING WORLD

56 Virtual Reality comes to mining **66**
by Ellsworth Dickson

57 Legacy Building Solutions' Fabric Buildings: strong, efficient and versatile **68**
by Kathrine Moore

61 Global UAV Technologies consolidating leading holdings in UAV service sector **70**
by Kathrine Moore

OIL & GAS

63 First Helium to target rare gas in Western Canada **71**
by Ellsworth Dickson

64 OIL PATCH REPORT
Schachter sees Q4 oil and gas investment bargains **72**
by Bruce Lantz

GREEN TECHNOLOGIES

Development in Green Technologies **74**
by Jane Bratun

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COVER: The Madsen Gold Project at Red Lake, northern Ontario. Photo courtesy Pure Gold Mining Inc.

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Editor's Comments

Ellsworth Dickson

Canada a global leader in mining but it's not all roses

According to a new report by PwC Canada, Canada's largest mining companies played a prominent role in the sector's global recovery that began last year after a four year+ downturn in the shares of exploration and mining companies.

For example, during 2016 the TSX Venture Exchange was responsible for 57% of global financings, according to the TMX Group. Factors that contributed to the mining industry's growth were Canada's international leadership in exploration, commitment to talent diversity and the implementation of innovation.

"As the global mining industry is moving out of a challenging time into a period of recovery, it is very encouraging to see Canada as an international mining leader in a variety of areas," said Liam Fitzgerald, National Mining Leader, PwC Canada.

However, something rather disturbing that took place is the suspension of mining at the Tahoe Resources Escobal Mine in Guatemala that was precipitated by a legal action brought by the anti-mining organization, CALAS, against Guatemala's

Ministry of Energy and Mines (MEM). The Escobal Mine is one of the world's largest silver producers. Tahoe Resources, a Canadian company, saw its share price drop by over 30%.

The action alleges that MEM violated the Xinca indigenous people's right of consultation in advance of granting the Escobal mining license. Tahoe states that it believes that no Xinca representative or community is currently participating in the CALAS lawsuit against MEM.

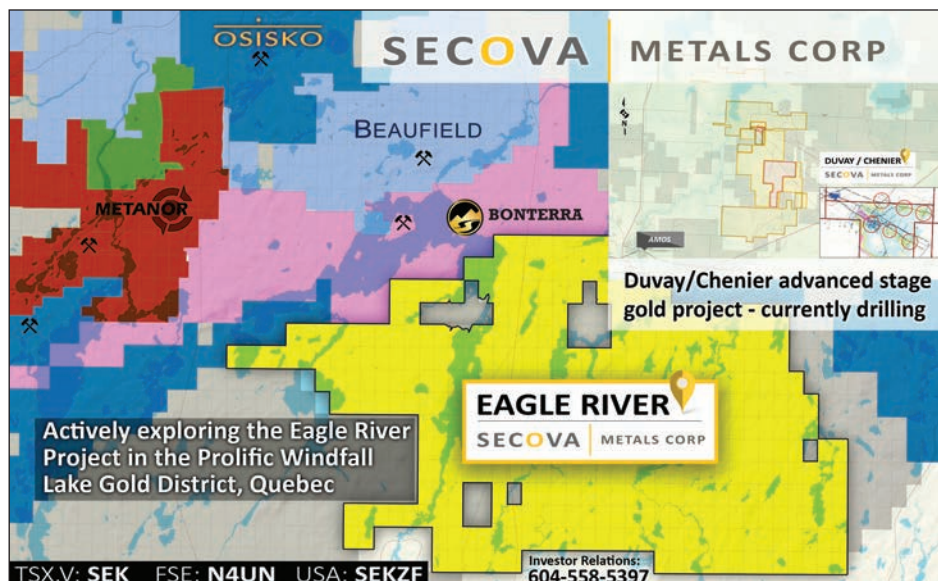
Tahoe will now take legal steps to have the ruling reversed and the license reinstated as soon as possible, including immediately appealing the decision to the constitutional court. Of note, the last official census shows the nearby town of San Rafael las Flores to be 98.6% non-indigenous with no Xinca community presence. Despite the fact that the Escobal Mine is not located in or impacting any indigenous communities, the company understands that MEM held a consultation process that complied with the requirements set forth in ILO Convention 169. The definitive constitutional claim and appeal process could

take over a year.

Ron Clayton, President and CEO of Tahoe Resources, said, "We are extremely disappointed in the court's ruling suspending the license because we believe that there are no indigenous communities affected by Escobal's operations. While the lack of indigenous communities in our area makes ILO 169 inapplicable, there is nevertheless extensive documentation evidencing that an ILO 169 consultation process was in fact conducted in the area of the mine. We are acutely aware that an adverse ruling could have a significant adverse impact on our shareholders, partners, employees, vendors and community populations, as tax and royalty payments, along with purchases of operating supplies will be suspended during any period that the mine is not operating. Escobal is our flagship mine which has been designed and operated to meet the highest environmental standards and we will make every effort to remove any suspension and bring Escobal back into operation as soon as possible. We remain committed to protecting our employees' livelihoods, as well as those livelihoods of the company's suppliers and the thousands of Guatemalan families that benefit from the responsible operation of the Escobal Mine."

Did the government really need to suspend mining operations during the court procedure, putting many employees, suppliers and service providers out of work?

Let's hope this does not set a dangerous precedent for other unsupportable actions opposing responsible resource development. ■



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Pure Gold Mining

Besides high-grade resources and existing infrastructure, this junior has assembled a team uniquely suited for advancing the Madsen Project from exploration to development.

by Ellsworth Dickson



While we can easily find the value of, say, gold or copper, is it possible to place a value on talent? Sometimes a group of people get together to form a company in which the contributions of the individuals add up to more than their particular abilities alone. Such is the case for **Pure Gold Mining Inc.** [PGM-TSXV; LRTNF-OTC] which holds the 100%-owned past-producing Madsen high-grade gold mine and mill in the Red Lake mining camp, northern Ontario. Officers include Chairman Graeme Currie who has a securities and investment banking background, President Darin Labrenz, a Red Lake mining geologist, and Dr. Mark O'Dea, Director, a notable geologist and successful company builder (Fronteer Gold, Pilot Gold, Aurora Energy, True Gold Mining).

RESOURCE WORLD: How did you become aware that the Madsen property could be acquired?

GRAEME CURRIE: Mark and Darin had sleuthed out that the property could be acquired from Claude Resources. My involvement came after they had initiated negotiations for the asset. I wasn't thinking about Madsen, but I did know that if

I wanted to get involved in a company, I wanted one with a geological upside in a mature, well recognized mining camp – in this case – Red Lake. I wanted something in a safe jurisdiction like Ontario and a project that was advanced with infrastructure and high-grade resources in place.

Noting the downturn that we went through, coming out I knew that grade

was going to be an important factor. The Madsen package had all these attributes.

RW: What were the acquisition terms for acquiring the Madsen Project?

DARIN LABRENZ: We purchased the Madsen Gold Project from Claude Resources in 2014 for approximately \$11.2 million in cash and stock. Subsequently, we acquired more ground so that we now

LEFT TO RIGHT: Darin Labrenz, President & CEO, Graeme Currie, Chairman, and Dr. Mark O'Dea, Director

have a contiguous land position of approximately 47 square kilometres of patented ground.

RW: Are there any other valuable metals at Madsen such as silver?

DL: There's silver in the deposit and I would expect to find more at the exploration targets that we're drilling; however, we don't expect anything of significant value for future production. This is a high-grade gold asset and the value driver is gold.

RW: With the high gold grades you are encountering, it makes me wonder why Claude, or earlier, Placer, didn't develop the project themselves to production.

DL: The previous owners conducted significant work at Madsen, including drilling, dewatering and bringing in some key infrastructure. All of that provides value to us moving forward. They faced issues with respect to financing and gold prices over that market cycle. There was a change to the dynamic in the camp as well with Placer Dome being acquired by Barrick and then Barrick selling assets in Canada but at the end of the day, we believe the project lacked focus. We're applying modern science methodology to the project's exploration program and that's identified new opportunities that we are delivering.

RW: The indicated and inferred resources already add up to over a million ounces of gold. Do you have an ounce target for resource definition?

DL: Yes, we'd like to see gold resources grow up to 2 million ounces in the near term. From a development perspective, we want to see our potentially mineable resource feed into an optimization study that allows us to look at the mill so we can focus on a long-term life with increased annual throughput. The PEA we published in 2016 is based on a small portion of resource. It was effective to lay out a

base case or worst case study to show that Madsen had a potentially economic scenario. We are now focused on a larger scenario with an increase in resources, a longer mine life, and potentially, higher annual throughput.

RW: What is happening at the project site now?

DL: We have been active on site for three years. The project comes with an extensive data set, from which we applied strong geoscience and then identified opportunities from our studies. We found some gaps in the exploration data, addressed those gaps and started to build a geological model for the Madsen Mine that explained what we saw from a past production perspective, but importantly, identified opportunities for additional resource development.

We started to test those ideas in January 2016 and, with success, accelerated our exploration program such that we drilled about 78,000 metres last year. This year we continue to be aggressive from an exploration standpoint. We've been drilling from surface with four rigs for a program of another 70,000 metres. We are now transitioning to an underground and surface directed exploration program with the reopening of an existing ramp [sloping tunnel] that provides access to the top 150 vertical metres. We have recently commenced underground exploration and drilling.

RW: Have you dewatered the mine?

DL: The mine was dewatered in 2013 down to a depth of about 800 metres by our predecessor. Those pumps were shut off in 2013. Based on historic recharge rates, we anticipate the water depth is about 600 metres below surface. Later this summer we will confirm that.

RW: It looks like the water level is below where you plan to install your drill stations?

DL: Absolutely, and so we have reopened the ramp and walked it. It's dry, in very good condition and water will not impact exploration. For production in the future, we would have to continue to

dewater the mine as normal course for a producing mine.

RW: Does the Madsen mill require much rehabilitation?

DL: The Madsen mill is not the original mill that produced continuously for 36 years. This mill was brought in during the late 1990s. It's the Dona Lake mill from a Placer Dome operation in Ontario that was purchased and brought to Madsen. It was put on care and maintenance so it's in good shape. Our PEA from last year suggests it will cost about \$2 million to put it back in operation.

RW: Your 2016 PEA has very high numbers such as a 62% after-tax IRR. Are you planning a feasibility study to confirm the PEA figures?

DL: The PEA 2016 was a base case. It only considered a portion of the Madsen – the in-situ mineral resource that we acquired in 2014. We wanted to establish a viable economic scenario. Meanwhile, our focus since acquiring the property has been on resource growth. We are being successful in adding ounces and we will have our resource update out in Q3 this year. That update will feed into an updated Preliminary Economic Assessment which we anticipate completing in Q3 to Q4 this year. Our updated PEA will be a larger scenario looking at a broader portion of mineral resource and will drive the larger scenario.

RW: I understand you want to develop and operate the Madsen Mine yourselves. What is your thinking on going it alone?

DL: We're moving towards production now. We have the benefit of existing infrastructure, a mill on site, a tailings facility and access to the underground through both a shaft and ramp which we recently reopened. So far, our focus has been on exploration. We feel strongly about the potential of the property to grow resources and make additional high-grade discoveries. However, our program is really dual track.

The second half is moving into operational readiness and, to that end we've initiated studies with hydro to understand

our power requirements. We're working with government agencies with regards to permitting. Our goal is to have the mine to where it can be operational and ready to produce within the next 18 to 24 months.

RW: Building and operating a mine involves different skill sets than exploration. How are you handling this challenge?

DL: Speaking for myself as a geologist, my background has been working over 15 years for Placer Dome. I had the benefit of working in exploration, operations, both underground and open pit, and the benefit of bringing in assets from exploration into feasibility, through permitting and into production.

To address some of the other skill sets, we've brought in Ken Donner, our VP of Operations since September last year. Ken is a very experienced operational manager. He's managed underground mines for 30 years including the Snip, Snap Lake and Julietta. He brings a different dynamic to the team. He's hands on and is really driv-

ing us towards operational readiness. As we continue to move towards production, we will grow that operational side of the team.

RW: You have a pre-production CapEx of \$20 million. This seems low for an underground gold mine. Is this because you already have a mill, and much underground development already existing?

DL: That's correct. The Madsen property has a long history as a producing mine. It does have the benefit of infrastructure with a mill, tailings facility and a ramp. That existing infrastructure provides us an opportunity to move into a producing state with a low capital cost. There's over \$200 million in infrastructure replacement costs at Madsen. As we move forward, we're looking at a larger scenario and that may require additional capital.

RW: Do you have an OpEx figure in mind?

DL: We've got a preliminary estimate from our base case PEA which suggested

it has very robust economics with all the sustaining costs about US \$700 per ounce but I will caution that was a base case PEA. With an update coming this fall, we'll have a better idea of those numbers.

RW: Do you know how many workers the mine and mill will employ when in production?

DL: Our assessment suggests there'll be well over a hundred mine workers employed when the mine goes into production plus some mill and maintenance workers. Numbers will be driven by the scale.

RW: What are your plans for raising the CapEx and OpEx funds?

DL: We're not committed to any particular funding path, but with a low capital cost, it gives us multiple opportunities to look at various options.

RW: Graeme, why do you think Pure Gold Mining is attractive to the current market?

GC: Safe jurisdiction, established mining

TSX-V:OK | FRA:1KO



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camp, high-grade ounces, infrastructure in place and, most important, the management team and board.

What makes Pure Gold unique on top of the assets is a team in place with extensive Red Lake experience: President and CEO Darin Labrenz with his experience at the Campbell Mine; Chief Geoscientist Christopher Lee was a semi-finalist for the Goldcorp Challenge; Vice President of Exploration, Phil Smerchanski, was a former Red Lake consultant for Goldcorp; Director Rob Pease was former Manager of Exploration for Placer Dome and Dr. Mark O'Dea was the runner-up in the Goldcorp Challenge. This represents a substantial platform of knowledge, 'sciencing' and boots-on-the-ground experience. The asset speaks for itself. We hope to add to the million-plus ounces already defined with our drilling programs.

RW: How do you think your career at Canaccord helped you prepare for your current job?

GC: As a mining analyst and then a banker, I had the opportunity to understand how you go about preparing and putting together a presentation on the assets of a company and marketing it to investors with a view to the potential upside in terms of resource expansion and operational potential. For financings, I like to think that it's not just my background that helped, but it's our team approach that has enabled us to raise capital.

RW: What is your outlook for gold?

GC: I am optimistic on the upside for gold in the next year or two. Gold has been range-bound for the last year between US \$1,200 and \$1,300 an ounce. The metal forms a core component for investment. I believe the supply-demand function alone, let alone the monetary focus that people may put on gold as a hedge, suggests to me that we've got upside.

As for Pure Gold Mining, there are further advantages for this high-grade Canadian asset as we have a Canadian dollar exchange rate that provides additional leverage to the metal price. For gold itself, I do not think we are anywhere close to seeing its top for this cycle. ■



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Exploration and Mining in Québec

Well-endowed with metals and minerals, particularly gold, the mining-friendly La Belle Province continues to attract explorers and miners.

by Ellsworth Dickson

Mineral explorers love working in Québec. Geologically speaking, it is rather astounding just how much gold has been produced there – and there is more to discover. Besides continuing to be highly prospective, the Québec government is encouraging mineral exploration and mining. No wonder that the Fraser Institute's *Survey of Mining Companies* stated that Québec holds the number two spot in Canadian investment attractiveness rankings, and falls in at number eight in worldwide investment rankings.

Gold production in Québec has been steadily rising since 2010 and is forecast to

reach almost \$3 billion for 2017, according to the *Institut de la statistique du Québec, Annual Survey of Mines* (Government of Québec).

But there's more. A huge enticement to exploring in Québec is the provincial government's program to reimburse 38% of exploration expenses to explorers who put the funds to good use the following year. Another inducement for mineral explorers is the Québec government's Plan Nord. According to Pierre Arcand, minister responsible for Plan Nord, the objective of the program is to promote mining, energy, tourism, social and cultural development

in Québec north of the 49th parallel. It is already creating jobs and wealth for northern communities. For example, Plan Nord completed the first 143 km of the road to Stornoway's Renard diamond mine with Stornoway completing the remaining 97 km using a credit facility with a favourable 3.35% interest rate.

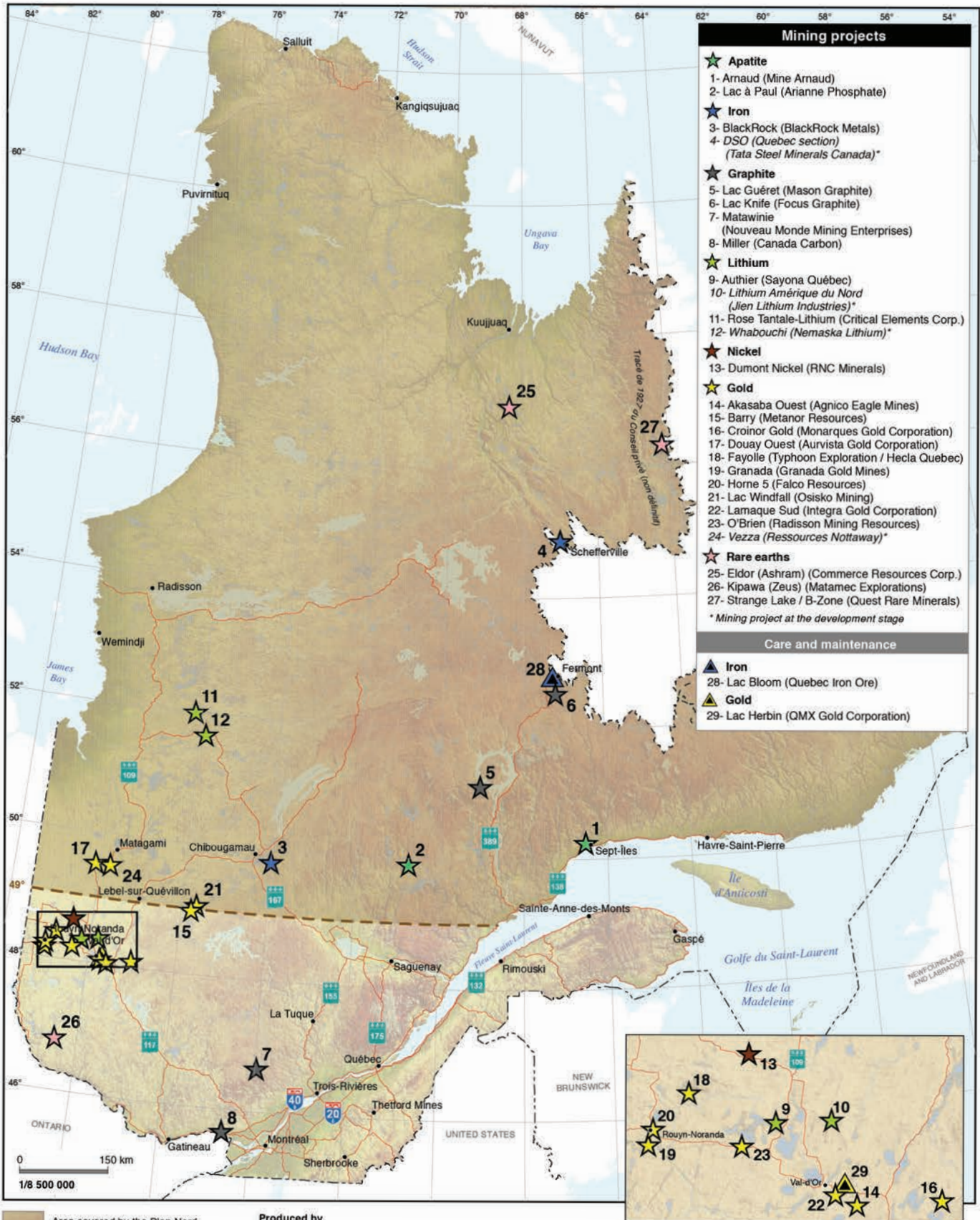
Here are a number of active Québec explorers and miners:

Abcourt Mines Inc. [ABI-TSXV; ABMBF-OTC; FSE, Berlin] reported that its 100%-owned Sleeping Giant mill has been treating gold ore from the Elder Mine



Three beautiful octahedral rough diamonds recovered from Stornoway's Renard diamond mine in the James Bay region of northern Québec. Photo courtesy Stornoway Diamond Corp.

Major mining projects



Courtesy Ministère de l'Énergie et des Ressources naturelles du Québec



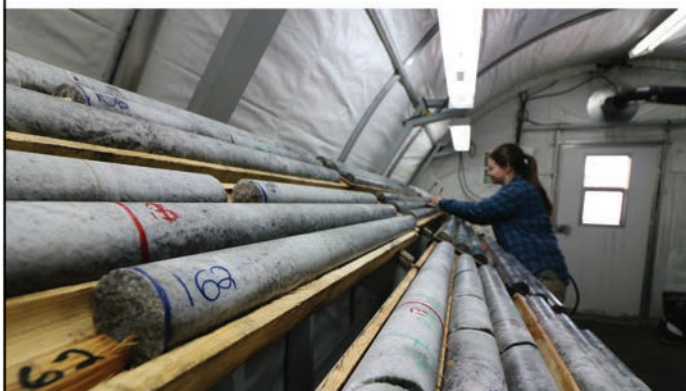
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- 20,000 m. drilling program (starting at fall 2017) focusing on high grade gold structures.
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with a recovery of 95.7%. The company generated revenues from the sale of gold of almost \$10 million for the six months ended December 31, 2016. The average price received was almost \$1,700/oz sold. Abcourt acquired the Sleeping Giant mine and mill in 2016, located half-way between Amos and Matagami.

Abe Resources Inc. [ABE-TSXV] has acquired Pioneer Resources Inc. and its Dôme Lemieux polymetallic (copper-zinc-silver-gold) property in the Gaspé region of eastern Québec and has filed a supporting NI 43-101 technical report.

Abitibi Royalties Inc. [RZZ-TSXV] receives royalties from various mining operations such as 3% net smelter return (NSR) royalty on the eastern portion of the Canadian Malartic mine (owned and operated by Agnico Eagle and Yamana Gold), which includes the Barnat Extension and Jeffrey gold deposits.

Agnico-Eagle Mines Ltd. [AEM-TSX, NYSE] has 100% interests in and operates three gold mines in Québec – the Lapa, La Ronde, Goldex, and has a 50% interest in the Canadian Malartic Mine (Yamana 50%). For 2017, payable gold production is expected to exceed 1,570,000 ounces, while total cash costs per ounce are expected to be between \$595 and \$625, and all-in sustaining costs are forecast between \$850 and \$900 per ounce of gold, on a by-product basis.

Alexandria Minerals Corp. [AZX-TSXV] recently reported assay results from drilling at the east end of its 100%-owned Orenada Zone 4 gold deposit in Val d'Or. Multiple high-grade gold veins were intersected in five drill holes drilled on two sections designed to test extensions of gold mineralization to the east as well as above and below the 2009 resource. Hole OAX-17-093 intersected several high-grade veins between 50-metre depth and 350-metre depth, with up to 18.06 g/t gold over 1.00 metre, 4.10 g/t over 6.80 metres, (including 13.28 g/t over 1.00 metre), 9.29 g/t over 2.20 metres and 8.45 g/t over 1.70 metres.

Alderon Iron Ore Corp. [IRON-TSX] is a development-stage company advancing the Kami Project located in the Labrador Trough, Canada's premier iron ore mining district. The Kami property is surrounded by two producing mines and is near a common carrier railway, as well as a deep-sea port. There is a NI 43-101 measured and indicated resource estimate of 1.2 billion tonnes grading 29.8%.

Arianne Phosphate Inc. [DAN-TSXV; DRRSF-OTC; JE9N] has signed a memorandum of understanding with a major global producer of sulphuric acid to explore the possibility of setting up a downstream operation that would produce phosphoric acid. Arianne is developing the Lac à Paul phosphate deposits 200 km north of the Saguenay/Lac St. Jean area. Although at an early stage of discussion, the venture is assessing the construction of a facility capable of producing a high-quality phosphoric acid for both the fertilizer market and for specialty applications.

Aurvista Gold Corp. [AVA-TSXV; ARVSF-OTCQB; AV2-FSE] has partially completed a financing to raise \$16 million. Funds will be used to explore the company's district-scale 305 km² Douay gold project located along a 40-km segment of the Casa Berardi deformation zone within the prolific Abitibi greenstone

belt in Northern Québec. The project hosts a multimillion-ounce gold deposit open in several directions.

Azimut Exploration Inc. [AZM-TSXV] announced that **Hecla Mining Company** [HL-NYSE] has begun a 2,500-metre diamond drilling program on the Opinaca B gold property held by Azimut and its partner **Everton Resources Inc.** [EVR-TSXV]. The seven-hole program is testing two targets with strong gold discovery potential: the Dominic area and the Fishhook structure.

Balmoral Resources Ltd. [BAR-TSX; BALMF-OTCQX] reported drilling has resumed on its Detour gold trend project in the Matagami region. A minimum of 20,000 metres of drilling is planned for the summer/fall program, bringing the 2017 drill program to 35,000 metres. The program will continue to focus on the expansion and delineation of the Bug Lake gold deposits and on the further evaluation of several recent near-surface gold discoveries within the broader Martiniere gold system.

Beaufield Resources Inc. [BFD-TSXV] has started an exploration program on its Urban property 190 km northeast of Val d'Or. The program consists of a minimum 10,000-metre drill program, a 720-line-km helicopter-borne VTEM-plus survey, prospecting, mapping and geochemical surveys over key areas of the property. Beaufield closed its acquisition of a 100% interest in the Windfall East Project from **Alto Ventures Ltd.** [ATV-TSXV].

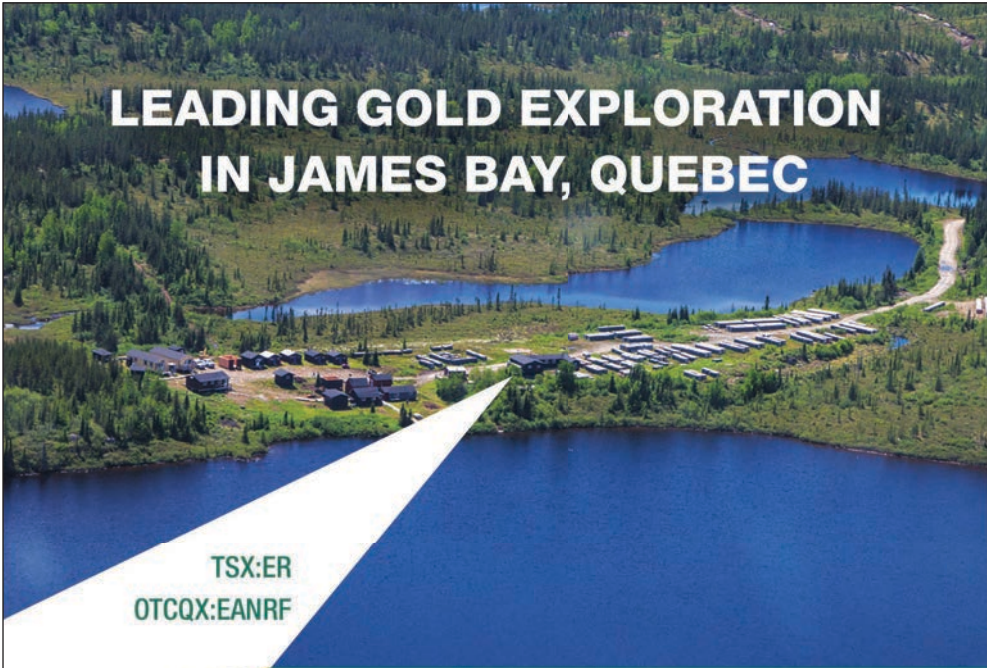
BonTerra Resources Inc. [BTR-TSXV; BONXF-OTC; 9BR1-FSE] discovered an additional parallel gold zone to the south and west of the main Gladiator gold deposit 170 km northeast of Val d'Or. The new zone lies within the Rivage Gap and was intersected by four drill holes to date, with BA-17-12 intersection 3.0 metres of 8.8 g/t gold, the best and most westerly hole to date.

Drilled dimensions of the Gladiator deposit are now outlined to a depth of 850 metres below surface with a strike length of 1,200 metres (1.2 km). Gladiator remains

open in all directions with drilling currently focused on the Deep East Zone, the Rivage Gap western side and within large gaps or voids with currently little drill information.


Canada Strategic Metals Inc. [CJC-TSXV; CJCFF-OTCBB; YXEN-FSE] and 50/50 partner **Matamec Explorations Inc.** [MAT-TSXV; MHREF-OTCQB] released results from the spring drilling campaign on the Sakami property 80 km southeast of Radisson. A total of 2,925 metres were completed in seven drill holes along the shore of Sakami Lake to extend known mineralized west and at depth. Highlights included hole PT-17-102 with 1.7 g/t gold over 30 metres, including 4.26 g/t over 4.5 metres.

Cartier Resources Inc. [ECR-TSXV] reported first results of its ongoing drilling campaign on the Wilson property 15 km east of Lebel-sur-Quévillon. The 8,000-metre program is testing the lateral and depth extensions of the Toussaint and Midrim gold structures. There were good



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Eau Claire – Mineral Resource Estimate Update (Q3 2017)
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Eau Claire – Preliminary Economic Assessment (Q1 2018)

assays from the western extension of the Midrim structure and they defined a new gold sector north of the Toussaint deposit. Hole WL17-05 returned 24.8 g/t gold over 1.0 metre and 5.0 g/t over 3.0 metres, including 14.1 g/t over 1.0 metre.

Century Global Commodities Corp. [CNT-TSX; CEUMF-OTC] is maintaining its market observer position for its iron ore business while maintaining a small, lean mining team ready to advance its projects rapidly when the market recovers adequately. Century has three iron ore projects in Québec – Joyce Lake, Sunny Lake and Duncan Lake.

Chibougamau Independent Mines Inc. [CBG-TSXV; CMAUF-OTC; CLL-STUT] has a large mining camp land package in the Abitibi-Chibougamau district that includes five former mines, two unmined deposits (one copper-gold, one zinc-gold-silver) and the down dip extension of three former sizable producers and numerous under explored drill intersections of copper and/or gold.

Commerce Resources Corp. [CCE-TSXV; CMRZF-OTCQX; D7H-FSE] is advancing its Ashram rare earths deposit in northern Québec. See Rare Earths article page 50.

Critical Elements Corp. [CRE-TSX; CRECF-OTCQX; F12-FSE] is exploring the IRC rare earths project. See Rare Earths article page 50.

Eastmain Resources Inc. [ER-TSX] has a 55,700-metre mineral resource definition drill program at the Eau Claire deposit, located in James Bay on the 100%-owned Clearwater Project. Recent near surface (less than 100 m) assays include 34.5 g/t gold over 1.5 metres, including 50.0 g/t over 0.5 metres and 48.8 g/t over 0.5 metres. The Eau Claire deposit hosts measured and indicated resources of 951,000 ounces and 633,000 ounces inferred. Eastmain has two other Québec projects – the Eastmain Mine Project and the Éléonore South Joint Venture.

Eldorado Gold Corp. [ELD-TSX; EGO-NYSE] recently acquired Integra Gold

Corp. Integra shareholders will collectively receive, for all the issued common shares of Integra that Eldorado did not already own, approximately CAD \$129 million cash and 77 million Eldorado shares. Each shareholder of Integra (excluding Eldorado) received \$1.21 per share. Integra will continue as a wholly-owned subsidiary of Eldorado. Integra owned the advanced stage Lamaque South gold project near Val d'Or which has a positive PEA and a mill as well as the Abitibi Greenstone Belt Project in Quebec.

Enforcer Gold Corp. [VEIN-TSXV; N071-FSE] and **Globex Mining Enterprises Inc.** are conducting a 6,000-metre drill program at the Montalembert gold project 80 km southwest of Chapais. Earlier, a ground induced polarization geophysical survey was completed that covered an approximate 1.5 by 1.5 km area over the main vein occurrences (Galena vein and No. 2 vein) located in the southernmost portion of the property.

Falco Resources Ltd. [FPC-TSXV;



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FPRGF-OTC] has acquired one of Canada's most established VMS mining districts, the Rouyn Noranda Mining Camp, including the Horne Mine Complex area (birth place of Noranda) and 13 other former producers. The company has completed a NI 43-101 resource update, a positive PEA and is now working on a feasibility study and an Environmental Assessment Report.

Fieldex Exploration Inc. [FLX-TSXV] halted for merger.

Focus Graphite Inc. [FMS-TSX; FCSMF-OTCQB; FKC-FSE] has a 100% interest in the Lac Knife crystalline flake graphite deposit located in the Côte Nord region. At approximately 15% graphitic carbon, Lac Knife is one of the highest-grade flake graphite deposits in the world. An updated resource calculation released in January 2014 showed battery-grade measured and indicated resources of 9,576,000 million tonnes grading 14.77% graphitic carbon, with inferred resources of 3,102,000 tonnes grading 13.25% carbon.

Genesis Metals Corp. [GIS-TSXV; GGISF-OTC] has begun a drill program at the Chevrier gold project 35 km south of Chibougamau. The company plans to drill a minimum of 10,000 metres in approximately 45 holes during the 2017 field season. The objectives of the drill program are to test new target areas and evaluate areas for possible expansion of the Main Zone. A trenching program is also underway.

Gespeg Resources Ltd. [GCR-TSXV] specializes in projects located in the Gaspé Peninsula of southeast Québec. The company has a 50% interest in the Montauban tailings project that has a large stockpile from a past-producing gold-copper-mica mine. Plans call for installation of a spiral concentrator, ball mill and cyanide processing facility. Some equipment will be transported from Val d'Or. In addition, the property has 65 claims attached with known gold showings and a NI 43-101 compliant resource of 100,000 ounces of gold. Sylvain Laberge told *Resource World* he hopes tailing treatment can start in about 18 months, the revenues of which to be used to fund other Gaspé copper exploration projects; namely the Vortex, Port Daniel, Murdochville A-B, In Between, and R-Jean.



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Genius Properties Ltd. [GNI-CSE] holds a property bank of claims covering a variety of metals and industrial minerals in Québec that are available for purchase or option.

GeoMega Resources Inc. [GMA-TSXV; GOMRF-OTC] See rare earths article page 50.

Globex Mining Enterprises Inc. [GMX-TSX; GLBXF-OTCQX; G1M-Germany] has dozens of mineral properties in Québec covering various commodities for sale, option or joint venture.

GFK Resources Inc. [GFK-TSXV] has been conducting a 3,000-metre drilling program, in 15 holes, on its 100%-owned Vezza Extension, Vezza Nord, Bachelor Extension and WinWin properties. The objective is to drill high-priority targets, identified by compilation of historical works or by recent geophysical surveys. The Vezza Extension and Vezza Nord properties are located few kilometres north and west of the Vezza gold mine, currently in production; the Bachelor Extension prop-

erty is located approximately 7 km east of the Bachelor gold mine, also in production. The WinWin property is directly located to the North extension of the Monster Lake Project (Iamgold/Tomagold) in the Chibougamau area.

Glencore PLC [GLEN-LSE; GLNCY-OTC] owns and operates the Raglan open pit-underground nickel-copper mine 105 km south of the northern tip of Ungava.

Goldcorp Inc. [G-TSX; GG-NYSE] owns and operates the Éléonore underground gold mine 320 km north of Matagami, northern Québec. Production ramp-up to full capacity is expected to continue into 2018 with the anticipated addition of a fifth production horizon. The mine produced 78,000 ounces of gold in Q1 2017.

Golden Hope Mines Ltd. [GNH-TSXV; GOLHF-OTC] has signed an option agreement for **HPQ Silicon Resources Inc.** [HPQ-TSXV] to earn up to a 50% interest in the Bellechasse-Timmins gold deposit located in St-Magloire in the Beauce region of southeast Québec.

Golden Valley Mines Ltd. [GZZ-TSXV] has signed an option agreement for Alexandria Minerals to earn 80% in the Centremaque property southeast of Val d'Or. Golden Valley also holds the Perestroika, Oregon and Magoma prospects in Québec.

Hecla Mining Company [HL-NYSE] owns and operates the Casa Berardi underground gold mine 95 km north of La Sarre in the Abitibi region. During Q1 2017, 35,807 ounces of gold were produced, including 7,157 ounces from the East Mine Crown Pillar pit, compared to 30,378 ounces in the prior year period, primarily due to higher throughput. The mill operated at an average of 3,263 tpd in the first quarter, an increase of 37% over the first quarter of 2016.

IAMGOLD Inc. [IMG-TSX; IAG-NYSE] has a 100% interest in the Westwood gold mine located on the Doyon property, 2.5 km east of the former Doyon Gold Mine about 40 km east of Rouyn-Noranda and 80 km west of Val d'Or. Westwood began production in Q1 2013. The mine began

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commercial production July 2014, producing 70,000 ounces in the first two quarters, with an average diluted grade of 7.98 g/t gold. Production for 2016 was 738,000 ounces of gold.

Jourdan Resources Inc. [JOR.H-TSXV] has completed a 1,500-metre drill program on the Preissac-Lacorne lithium portfolio, optioned from **Alix Resources Inc.** [AIX-TSXV] and one other claim owned by Jourdan. The centre of the drill program is 1.5 km northwest of the adjacent Québec lithium mine owned and operated by **North American Lithium** (private). The adjacent mine recently announced commercial production of spodumene concentrate. A total of 1,500 metres of drilling were completed in 12 drill holes, 11 holes on the Preissac-Lacorne lithium portfolio and one hole (WL17-12) on claims owned 100% by Jourdan. Spodumene-bearing dikes have been visually identified in all holes except WL17-02 and WL17-05.

Khalkos Exploration Inc. [KAS-TSXV] has signed an option agreement for **Dundee Precious Metals Inc.** [DPM-TSX] in the Malartic gold property 12 km northwest of the Canadian Malartic Mine (Agnico Eagle/Yamana Gold) and 2 km east of the Lapa Mine (Agnico Eagle). Khalkos has a number of other projects in Québec, including Nanuq, Belleterre, Forsan and Villebon.

Lomiko Metals Inc. [LMR-TSXV; LMRMF-OTCQB] has two graphite projects

in Québec. La Loutre, 117 km northwest of Montreal, 18.4 million tonnes of 3.19% flake graphite indicated and 16.7 million tonnes at 3.75% flake graphite inferred. Lomiko also holds the Quatre Milles East-West graphite property 175 km northwest of Montreal.

Mag One Products Inc. [MDD-CSE; MGPRF-OTC; 304-FSE] plans to process serpentinite tailings from a past-producing mine in southwest Québec to produce a magnesium oxide product. The initial processing plant near the tailings site is expected to have a capacity of 10,000 tonnes/annum of MgO and 10,000 tonnes/annum Mg(OH)₂ with a CAPEX of \$6 million. Refer to article in *Resource World*, Volume 15 Issue 4, page 49.

Metanor Resources Inc. [MTO-TSXV] is conducting a surface drilling program at the Barry Project in the Urban-Barry camp. Several new gold-bearing shear zones have been identified below and outside of the Barry pit area as highlighted by drill hole MB-17-76 which intersected 9.9 g/t gold over 4.0 metres at over 200 metres below the Barry pit.

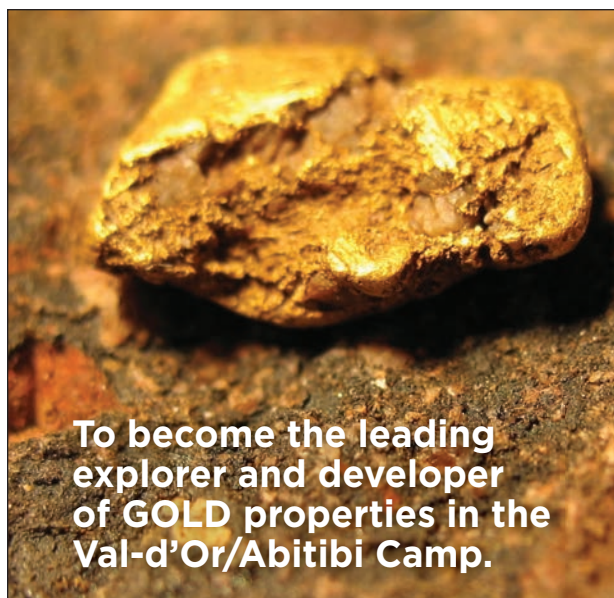
A new shear structure, the South Zone, is 75 metres south of the pit and shows continuity over 300 metres along strike and 250 metres vertically. A minimum of five parallel shear zones have been identified so far and remain open along strike and to depth. Drilling highlights include

5.1 g/t gold over 8.0 metres and 9.7 g/t over 4.0 metres.

Monarques Gold Corp. [MQR-TSXV] reported results of drilling in the Gold Bug area less than 500 metres from the 100%-owned Croinor gold deposit 70 km east of Val d'Or. Drilling was aimed at testing the gold-bearing potential of the zone discovered in January, when Hole CR-16-521 returned of 8.41 g/t gold over 25 metres. Drilling confirmed that the shear corridor contains anomalous to economic gold grades over a width of about 15 metres, to a vertical depth of at least 115 metres. Hole CR-17-532 intersected 6.96 g/t gold over 15 metres, including 17.1 g/t over 5.9 metres.

Nemaska Lithium Inc. [NMX-TSX; NMKEF-OTCQX] is developing the Wabouchi spodumene lithium hard-rock deposit. The spodumene concentrate produced will be shipped to the company's lithium compounds processing plant to be completed in Shawinigan, Québec. The plant will transform spodumene concentrate into high-purity lithium hydroxide and carbonate using proprietary methods developed by Nemaska.

New Millennium Iron Corp. [NML-TSX; NWLNF-OTC] and strategic partner **Tata Steel** have been advancing seven, long-life, NI 43-101 compliant taconite properties in the Labrador Trough capable of producing high quality iron products to make steel.



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Northern Superior Resources Inc. [SUP-TSXV] has defined an inferred gold resource on the Croteau East property in the Chapais-Chibougamau camp totaling 640,000 ounces of gold. The company also holds the Lac Surprise gold property in the same camp and Wapistan in the James Bay Lowlands.

Nouveau Monde Graphite Inc. [NOU-TSXV; NMGRF-OTCQB; NM9-FSE] plans to build a demonstration plant in Saint-Michel-des-Saints. The plant will have a capacity to produce 1,000 tonnes of natural graphite concentrate per year using mineralization from Nouveau Monde's West Zone deposit, part of its Matawinie graphite property. The plant is expected to be operational in the first half of 2018 pending permits and financing.

Osisko Metals Inc. [OM-TSXV], is creating value in the Canadian zinc space. In 2017, 42,000 hectares within Québec were acquired, covering 12 grass-root zinc properties that will be selectively advanced. In parallel, several zinc-oriented peers are being monitored for other opportunities. **Osisko Gold Royalties Ltd.** is a significant shareholder of the company. See New Brunswick projects page 61.

Osisko Mining Inc. [OSK-TSX; OBNMF-OTC] reported results from drilling its 100%-owned Windfall Lake gold project in Urban Township. The 400,000-metre program combines definition drilling above the Red Dog intrusion, expansion drilling above and below Red Dog, expansion drilling to the northeast of the main deposit, and exploration drilling on the greater deposit and Urban-Barry project area.

Significant new assay results from 15 intercepts in 11 drill holes focused on infill and expansion drilling in the high-grade Lynx discovery and the main Windfall deposit. Highlights include: 12.5 g/t gold over 8.5 metres in DDH OSK-OBM-16-667 in the Underdog corridor, and 12.4 g/t over 5.0 metres in DDH OSK-W-17-805 in Lynx 2 and 15.9 g/t over 3.0 metres in DDH OSK-EAG-13-504 in a new extension of the Wolf Zone in the Caribou corridor.

Osisko Gold Royalties Inc. [OR-TSX, NYSE; OKSKF-OTC] is an intermediate pre-



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cious metal royalty and stream company focused on the Americas that commenced activities in June 2014. It holds over 50 royalties and streams, including a 5% NSR royalty on the Canadian Malartic Mine and a 2.0% to 3.5% NSR royalty on Goldcorp's Éléonore Mine.

Probe Metals Inc. [PRB-TSXV; PROBF-OTCQB] is acquiring a 100% interest in the Aurbel East property from **QMX Gold Corp.** [QMX-TSXV] for \$1 million cash. The property is adjacent to the Probe's Val d'Or East Project near Val d'Or, strategically located west of the company's 100%-owned Resenor gold deposit and Richmond Mines' producing Beaufor Mine. Aurbel East increases Probe's landholdings in Val d'Or to 316 km², making it one of the largest land packages in the camp. Probe also acquired a 100% interest in six claims in and adjacent to the Val d'Or East Project from private landowners for \$25,000. Work is continuing on Probe's 75,000-metre drill program at Val d'Or East.

Quest Rare Metals Ltd. [QRM-TSX; QRMLF-OTC] See Rare Earths article page 51.

Radisson Mining Resources Inc. [RDS-TSXV] released additional results from the continuing 20,000-metre drill program at its O'Brien gold project located along the Larder Lake-Cadillac fault half-way between Rouyn-Noranda and Val d'Or. Drilling results continue to demonstrate lateral and vertical continuity of current mineral resources of the O'Brien deposit. The company continues to confirm the presence of high-grade gold intercepts within wider low-grade mineralized envelopes, (OB 17-25 returned 1.0 g/t gold over 93 metres). Highlights include 19.6 metres grading 4.5 g/t gold at a depth of 354 metres, including high-grade gold intervals of 33.2 g/t over 2.0 metres and 8.6 g/t over 1.0 metre.

Richmont Mines Inc. [RIC-TSX, NYSE MKT] owns and operates the Beaufor Mine 27 km northeast of Val d'Or where over 1,150,000 oz of gold have been produced.

Ore is trucked 50 km to the Camflo mill.

Stelmine Canada Ltd. [STH-TSXV] has applied by map staking for the acquisition of mining claims located in the James Bay territory, less than 60 km northwest from Stornoway Diamonds Corp.'s Renard Mine. The Trieste property, owned 100% by Stelmine, consists of 48 continuous claims forming an area of 24 km².

Stornoway Diamond Corp. [SWY-TSX; SWYDF-OTC] has a 100% interest in the Renard diamond mine 350 km north of Chibougamau in the James Bay region of north-central Québec. Now in commercial production, the mine is expected to produce an average of 1.6 million carats per year over an initial 14-year mine life, representing approximately 2% of global supply. A total of 448,887 carats were produced in 2016 at 112 carats/hundred tonnes, significantly ahead of plan.

Tarku Resources Ltd. [TKU-TSXV] has completed the acquisition of all the issued and outstanding shares of Eureka Exploration Inc., which shall become a



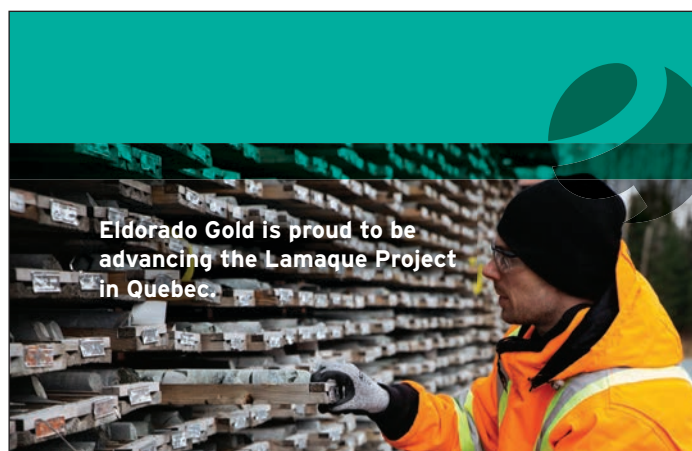
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wholly-owned subsidiary of Tarku. Eureka assets encompass five well-positioned exploration properties near Chibougamau and Matagami in northern Abitibi.

TomaGold Corp. [LOT-TSXV] has interests in seven gold properties in northern Québec: Monster Lake, Winchester, Lac-à-l'Eau-Jaune, Monster Lake East, Obalski and Lac Cavan near the Chibougamau mining camp, and Urban Lake in Lebel-sur-Quévillon. Recent drilling by 50% owner IAMGOLD at the Monster Lake Shear Zone, Megane Zone and Annie Shear Zone returned 5.0 metres grading 80.28 g/t gold, including 1.8 metres grading 208.41 g/t gold in drill hole ML17-198B.

Vanstar Mining Resources Inc. [VSR-TSXV] has farmed out an 80% interest to IAMGOLD in the Nelligan gold project 45 km south of Chapais. In March, drilling returned 3.19 g/t gold over 11.69 metres in the North Sector of Nelligan.

Secova Metals Corp. [SEK-TSXV;

SEKZF-OTC] has acquired 1106541 B.C. Ltd., a private British Columbia company of which the sole asset is the Osisterra Project that consists of 30 claims or 1,694 contiguous hectares adjacent to its Eagle River Project, which is on trend to the Windfall Lake, Urban Barry and the Gladiator gold projects. This brings the company's total contiguous land position at Eagle River to 21,472 hectares, making Secova one of the largest landholders in the district behind Osisko Mining. The Osisterra Project has had exploration on the property dating back to 1977, including mapping, airborne geophysical surveys and some drilling.

Sirios Resources Inc. [SOI-TSXV; SIREF-OTC] is exploring the 100%-owned Cheechoo property 13 km east of Goldcorp's Éléonore gold mine. The company also holds several other prospects in Québec.

Vanadiumcorp Resource Inc. [VRB-TSXV; ARXRF-OTCQX; NWN-FSE] has entered into an option for Alix Resources

Corp. [AIX-TSXV; ARXFR-OTC; 37N-FSE] to earn up to a 60% interest in the Iron-T vanadium project, which spans 3,500 hectares and encompasses a NI 43-101 vanadium resource adjacent to the mining centre of Matagami.

Typhoon Exploration Inc. [TYP-TSXV] recently received good gold assays from sampling on its 100%-owned Monexco property 30 km northeast of Chibougamau. Best results were obtained from the VG trench, with 21 assays above 1.0 g/t gold from a total of 70 samples. Gold values obtained vary between 1.7 and 81.8 g/t gold. The main Monexco showing returned eight samples above one g/t gold that varied between 1.2 and 12.3 g/t gold.

Yorbeau Resources Inc. [YRB-TSX; YRBAF-OTC] is focusing on its Rouyn property 4 km south of Rouyn-Noranda which is prospective for the discovery of a major gold deposit and eventual mine development. ■

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What reconciliation means for southeast NWT exploration

by Laura Barker

Thomas Isaac, former Chief Treaty Negotiator for the government of BC and lawyer specializing in aboriginal policy and legal matters at Cassels Brock & Blackwell LLP, insists that ‘unsettled land claims’ are not and should not be perceived as a barrier to resource development in Canada. This applies to the southeast Northwest Territories (SE NWT), where a lack of settled land claims is notable compared to the rest of the territory, and where Isaac was appointed by the Minister of Indigenous and Northern Affairs and the Premier of NWT as the Special Representative to help develop a path to reconciliation for outstanding Aboriginal claims and negotiations.

Isaac’s perspective may become increasingly relevant to investors in the next few years as the GSC’s Geo-Mapping for Energy and Minerals (GEM) project completes four 250,000-scale regional map sheets in SE NWT, likely generating increased exploration activity. The mapping program is upgrading the understanding of the geology and mineral potential in the most poorly mapped part of the Canadian Shield, and tracing structures and geology from northern Saskatchewan (where there are many past and currently producing mines) north across the border into NWT.

The purpose of Isaac’s appointment, on June 16, was to advance outstanding Section

35 rights and related claims in SE NWT. (Section 35 of Canada’s *Constitution Act, 1982* provides that existing aboriginal and treaty rights of the aboriginal peoples in Canada are recognized and affirmed.) He consulted with numerous indigenous groups and public governments with interests in the region, examined existing negotiation processes, and developed recommendations. Isaac’s report, *A Path to Reconciliation*, was released publicly in April 2017.

In the report, Isaac attributes the challenges to making progress on claims, in part, to an unnecessary focus on the failed 1990 Dene-Métis agreement. While the 1990 Dene-Métis framework assisted the settlement of claims in other parts of NWT, it is not helpful in SE NWT given the higher number of overlapping indigenous claims and the fact that the Denis and Métis are not negotiating together (unlike in other areas of NWT).

However, Isaac asserts that these issues are not insurmountable, or even unique. Overlapping claims throughout the entire province of British Columbia involve over 200 First Nations, plus Métis interests, yet the province is a major player in Canadian exploration, accounting for an average of 19% of Canada’s exploration plus appraisal expenditures between 2012 and 2016 (NRCAN 2017).

According to Isaac, “The

Canadian legal system is designed to deal with conflicting land claims. Overlapping claims are not the issue, and while the challenges that indigenous groups and government in NWT face are complex, they are not unique. Jurisdictions like British Columbia have numerous unsettled claims while business and governance continue, albeit within the context of unsettled indigenous claims. For SE NWT, the best possible route forward is to explore modern, workable mandates for land claim settlements that are balanced, fair, and sensitive to the multitude of competing interests in SE NWT, while accommodating the realities of our global economy.”

In terms of how this impacts the resource industry, Isaac maintains, “The notion that you need a settlement to encourage resource development I would reject. The sky doesn’t fall absent a settlement, but a settlement can be an extremely positive development in the broader framework of attracting and maintaining investment in the natural resource sector. The bigger issue at play in Canada is government reactions to aboriginal claims and assertion of rights through the regulatory process.”

During Isaac’s engagement, he observed positive attitudes towards resource development: “In working with aboriginal peoples, I did not hear



Thomas Isaac, Northwest Territories Special Representative.

anything I would call anti-development. What I heard was a desire to be involved in decision making processes, a desire to have Section 35 rights acknowledged and respected, and a desire to share the benefits of resource development appropriately.”

His personal experience with major mining and energy companies has also been positive in that “they are prepared and willing to engage in proactive consultation aggressively.”

To exploration companies, he advises that “Due diligence is the number one issue.... Go into any of these areas and know the indigenous peoples who are living or asserting their rights in the area, know your regulator, and know what sensitivities exist in dealing with aboriginal issues... And say what you mean, and mean what you say in your communications. These are the core issues.” ■

Local partnerships essential for mining in Asia

by Robert L. Wallack

Recent mining law reforms are bringing bright prospects for **Vatic Ventures Corp.**'s [VCV.H-TSXV; V8V-FSE] potash discoveries in Thailand and for **Southern Arc Minerals Inc.**'s [SA-TSXV; SOACF-OTC] gold, silver and copper exploration in Japan and investment properties for Indonesia. National and local partnerships are paramount to these two mining companies in order to overcome challenges and spread the benefits to the local communities as they seek to capture domestic and export markets. Vatic executives have deep experiences in Thailand's Korat Plateau for potash resources as does Southern Arc Minerals for their island gold prospecting in Japan. Vatic Ventures' Saksrithai potash project is located in Thailand's northeast corner province of Nakhon Ratchasima which is the largest province in Thailand with a population of 2.7 million and located 270 km from Bangkok.

In 1973, the Department of Mineral Resources of Thailand along with the United States Geological Survey evaluated the potash potential and conducted drill programs that indicated the extent of the evaporate deposits underlying the Khorat Plateau. Thailand expected to rapidly develop a potash industry and several companies applied for concessions, but most did not conclude agreements. Among them were: Duval Corporation, CRA/Rio Tinto Exploration Ltd., BHP-UTAH, Placer Dome and Agrico Chemical Corporation. The only two projects that survived these early potash challenges were the Asean Project at Bamnet Narong and Asia Pacific's Udon Thani Project, where the Canadian company replaced Agrico in the Thai Agrico Concession Agreement and found a joint venture with Metro Company, Thailand.

Dr. Gerald D. Wright, CEO and Director, described in a recent interview with *Resource World* that the Udon Thani and Bamnet Narong projects were at the bankable feasibility stage by around 2000, but the licensing of the projects became protracted and progress stalled.

"There has been much opposition to major mining projects in the country and much care and patience has been exercised in addressing environmental issues and the public consultation process," he said.

However, the economic benefit to the Thai government resulted in strong support to the potash industry's development. In 2014, the Thai Ministry of Industry set up a special steering committee to promote the development of the country's potash resources. Recently, mining licenses approved for two projects were: Thai Kali Co. and Asean Potash Mining Co. which are under construction and a license is pending for a third: the former Asia Pacific Project.

Additionally, the government granted a limited number of potash exploration licenses (SPAs), including those acquired by Saksrithai Development Co. Ltd., but it is uncertain whether any further licenses will be granted in the foreseeable future, according to Dr. Wright.

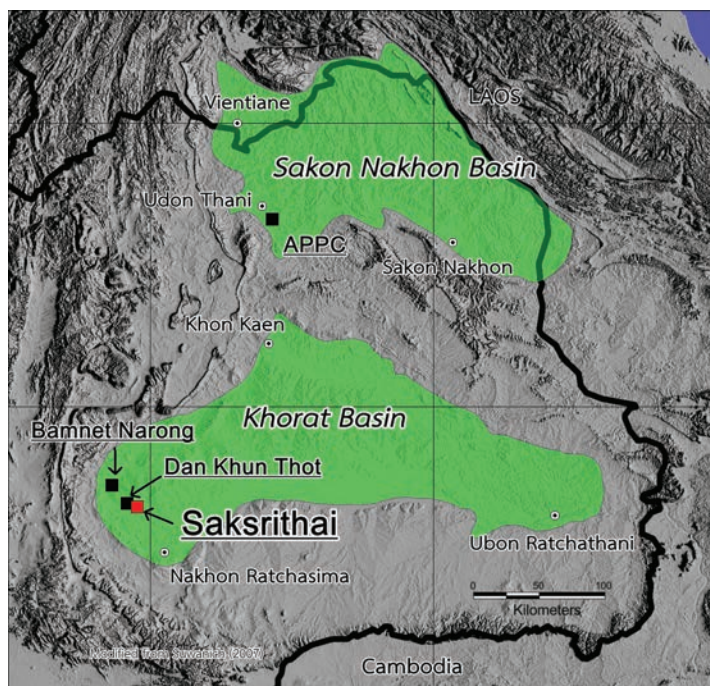
In January 2017, Vatic acquired 80% of the issued and outstanding shares of Saksrithai Development Co. Ltd., a Thai company which holds two contiguous Special Prospecting Licenses (SPLs) covering an area of 32 km² for the exploration of potash. Saksrithai is a private company incorporated under the laws of the Kingdom of Thailand and the licenses are located in the province of Nakhon Ratchasima. Vatic's Saksrithai Project area is located in the southwestern part of the Plateau, adjacent to the Thai Kali Company's Don Khun Thod Project and in close proximity to the Bamnet Narong Project, both under construction.

In February 2017, Vatic commenced the first phase of the exploration program. The information from the seismic survey is now being assessed and this will form the major input in planning the initial drilling program. Dr. Wright explained that "Vatic commenced a community information program in the project area and is commencing an environmental baseline study with other programs to include: a regional geological review and survey, satellite data interpretation, area mapping and preliminary transportation and marketing studies."

Dr. Wright was co-founder of the Crew Group of Companies and has over 30 years of experience in the minerals exploration and development industry in Asia, North America, Europe and Africa.

"I have significant experience and knowledge of the global potash industry and in particular, the potash resources underlying Thailand's Khorat Plateau. I served as Chief Executive Officer of Asia Pacific Resources Ltd. for 12 years and was directly responsible for the acquisition, financing and development of that company's Udon Thani Project, Asia's most significant commercial potash discovery to date. In addition, Nasim Tyab, President and Director, was a member of the corporate development team for the Udon Thani Project. Vatic is the only Canadian-listed company now involved in the Thai potash industry.

Vatic is partnering with the local community and other stakeholders, especially in light of recent government initiatives. A *Bangkok Post* article on June 13th stated that the Mineral Resources Management and Policy Commission appointed a number of sub-committees to draw up plans to regulate and manage use of mineral resources and make sure that use and develop-



The Vatican Ventures Saksrithai Potash Project is located in Thailand's northeast corner province of Nakhon Ratchasima. Map courtesy Vatican Ventures Corp.

ment plans...such as potash...were in compliance with a new mining law. These sub-panels take into consideration the health and environmental concerns raised by the local communities. Therefore, Vatican is including the interests of the local stakeholders in the overall project planning. Dr. Wright stated, "The project will embrace social and environmental impact standards per the Equator Principles and is engaged in discussions with landowners and community leaders."

Potash (potassium chloride or KCl) is a potassium salt and an essential plant nutrient; one of the three required fertilizers, (the other two are nitrogen and phosphate) for crops such as rice, wheat and palm oil. Over 90% of potash production is used in the manufacture of mineral fertilizers. "There is no natural substitute for potash," said Wright.

The major producing countries are Canada, Russia, Belarus, Israel, China and Germany which combine for some 90% of world production with an annual world potash production of 60 million tonnes KCl and annual growth rate of 2.4%. Asia currently consumes 28 million tonnes KCl per year of which China produces 5 million tonnes, domestically. China and India combine for over 70% of total consumption in the region.

Vatican's marketing plan targets Thailand, Malaysia, Indonesia and Vietnam consuming some 75% of the regional balance. These four have current demand of 5 million tonnes KCl per year at a 4-5% per year growth rate. Rice and palm oil cultivation account for some 70% of potash usage in the Southeast Asia region.

In fact, Indonesia and Malaysia are the world's largest producers of palm oil while Thailand and Vietnam are leading producers of

rice. "Proximity to these growing markets combined with convenient and flexible transportation options provide significant cost advantages of up to \$60 per tonne over Canadian and European suppliers to the region," said Wright. He can only speculate about the project potash reserve and production capacity, but a "reasonable development target" may be a production level of one million tonnes KCl per annum for a minimum life of 20 years.

Wright is very optimistic about the basic infrastructure for the project in Thailand. This includes electrical power (from the Thai regional authority and from a hydropower plant), roads, rail, and ports. "These will reduce capital costs normally associated with major project developments," he said. The domestic and Malaysian market will be served by road, but most product will reach markets by river ports and the Laem Chabang seaport for export to regional markets. Moreover, the project is several kilometres from the railroad network connecting the main north eastern to Bangkok and beyond. This railroad is a single line, narrow gauge rail which will be upgraded to a double-track standard gauge system by a China-Thailand project and will offer logistical and economic benefits.

Southern Arc Minerals is experiencing similar mining law reforms in Japan and Indonesia. In 2012, Japan's mining laws changed to re-activate the mining industry. Since the 1970s, Japan conducted little active mineral exploration leaving a shortage of geologists, drillers and drilling contractors employing modern techniques in drilling operations. However, Japan has a long history of mining and hosts 5 million plus-ounce gold deposits. Southern Arc Minerals saw this renaissance of mining in Japan and acted.

Southern Arc moved quickly to review historical data and identify key exploration targets. They were the first foreign exploration company to apply for prospecting rights. In 2015, Southern Arc applied for 80 prospecting rights covering 27,153 hectares over eight distinct projects in Japan through its wholly-owned Japanese subsidiary Southern Arc Minerals Japan KK. In September 2016, the company sold its Japanese focused subsidiary to Sky Ridge Resources Ltd. Sky Ridge changed its name to **Japan Gold Corp.** and commenced trading on the TSX Venture Exchange under the symbol "JG". Southern Arc now holds a 42.57% interest in Japan Gold. Japan Gold expanded its project portfolio to 57, 337 hectares comprising of 173 prospecting rights applications accepted across 11 separate projects. To date, prospecting rights went to 32 applications.

Southern Arc's leadership team has long recognized Japan's prospects for gold, silver and copper. Japan Gold's executive team and Board of Directors have decades of technical and business experiences and a proven record of growing companies. The team includes geologists and advisors with experience exploring and operating in Japan. "Japan Gold is focusing on areas with historical government drilling holes showing prospective results and historical mines and workings many of which stopped in ore during World War II and never re-opened," according to John Proust, Chairman and CEO and Dr. Mike Andrews, President and COO.

Erdene Resource finds more Mongolian gold

Erdene Resource Development Corp. [ERD-TSX] reported more drill results from its 100%-owned Bayan Khundii gold project, southwest Mongolia. "We are now at the midpoint of the initial 2017 drill campaign in the Bayan Khundii region and thus far have defined several new areas that will require definition drilling, particularly west and east of Striker, the Northeast Zone, and importantly north and west of Midfield. It is very encouraging to continue to intersect broad zones of gold mineralization along the margins of the established 1.3-kilometre-by-500-metre mineralized trend," said Peter Akerley, President and CEO. "As we continue to expand outward from that area in Q3 we will be testing six new target areas up to one kilometre from the original discovery at Striker Zone. In addition, as drilling progresses through Q3, we will move into the untested 3.5-kilometre-long gold-in-soil anomaly that continues north to Altan Arrow and ultimately return to drilling at our Altan Nar Project, 16 kilometres to the northwest."

HIGHLIGHTS

- Successful step-out drilling and geophysics leads to an expanded target area
- Drilling west of Striker and Midfield zones returned multiple, high-grade, 1-metre intervals 10-22 g/t gold
- Drilling up to 150 metres west of Striker returned multiple gold mineralized intersections including 28 metres of 1.4 g/t gold
- Drilling west of Midfield Zone returns 36 metres of 1.1 g/t gold
- Q3 drilling of five untested targets and continued definition of new targets north and east of Midfield and Striker zones with closer-spaced drilling

Drilling confirmed continuity of mineralization at the Midfield Zone and returned 17 metres of 8.2 g/t gold within 131 metres of 1.8 g/t gold. Drilling confirms strong mineralization between Striker and Midfield zones and returned 24 metres of 6.5 g/t gold. Bayan Khundii drill results to continue throughout Q3 2017. ■

Japan Gold has a partnership with Sumiko Resources Exploration and Development Co. Ltd. (SRED) a wholly-owned subsidiary of Sumitomo Metal Mining Co. Ltd. to manage and operate its drilling program in Japan. Since 1963, SRED is very experienced in Japan, especially at the Hishikari Mine which is one of the world's highest grade gold mines. "Japan Gold purchased three diamond core drill rigs that will be operated by SRED to mitigate the risk of a potential shortage of diamond core drill rigs in Japan," said Proust and Andrews.

Further south in Asia, Southern Arc has investment properties for gold on the West Lombok property that covers a 13-km long by 7-km wide structural corridor of mineralization and alteration hosting porphyry copper-gold and epithermal gold deposits on the island of Lombok, Indonesia. This island is located on the central part of the 3,940-km long Sunda-Banda Arc and hosts the world-class Batu Hijau Mine on the neighboring island of Sumbawa. "Other than artisanal production, there is not yet any commercial mines developed on the island of Lombok," according to Proust and Andrews.

In order to work on the island, Southern Arc announced on December 8, 2014 that they entered a binding agreement with PT Genesis Sumber Energi (PT GSE) to advance the West Lombok Project. This investment proposal stipulates that PT GSE can earn a 25% interest in the subsidiary if they fund and receive government approvals for an environmental impact study and feasibility study for a small-scale underground mine less than 100 metres deep as well as processing plants and to receive approvals to convert the exploration (IUP) permit to an exploitation permit on West Lombok for a 20-year tenure. "PT GSE has not yet completed those requirements," said Proust and Andrews.

The exploitation permit will enable Southern Arc to begin an Integrated Service and Support Agreement (ISS) with PT for the artisanal mining. Profits will be distributed as follows: 25% to Southern Arc, 65% to PT GSE and 10% to the local government. If they dig deeper, then profits will be split 65% to Southern Arc, 25% to PT and 10% to the local government. Associated costs will be assumed by PT GSE for field work, administrative, financial, environmental and technical reporting to the government agencies for permits. "Indonesia costs will be reduced to about US \$20,000 per month to allow the company to protect its treasury," said Proust and Andrews.

The West Lombok IUP permit was extended once already and Southern Arc applied for a further one-year "suspension" (as it is called) until January 2018 and is awaiting response from the Indonesia Department of Mines. The suspension (actually an extension) of the expiry of the IUP is to allow PT to complete the environmental impact study and feasibility study required to convert the IUP into an exploitation permit granted by the Indonesia Department of Mines.

Proust and Andrews concluded by stating, "The main challenges of working in this area relate to managing the expectations of local governments and the local people and are typical in newly developing countries with immature mining laws." ■



Speculations

by Leonard Melman

Eerily Static Markets

One of the benefits of having been around the world of mining and resource development for 40 years or so is that you can easily assume that you have seen everything. However, I must admit that nothing in my experience has quite matched the non-performance of so many markets simultaneously such as we have experienced over the past several months.

Examples abound. The Dow Industrials were 21,200 in early March 2017 and they are 21,300 as this is written in early July. Crude oil was US \$45 a barrel in August 2016 and it is US \$45 in July 2017. Gold was near US \$1,200 an ounce in January 2017 and is near US \$1,200 in July 2017. Silver was US \$15.85 an ounce in December 2016 and it is just below US \$15.85 in July 2017. The yield on 30-year US Treasury Bonds as measured by the TYX Index was 2.90% in November 2016 and is presently 2.90% in July 2017. The XAU Gold/Silver mining share index was near 78 in October 2016 and is near 78 in July 2017.

While there have been some sharp but short term price movements that have indeed taken place during the past year, for the most part they have been almost immediately followed by sharp moves in precisely the opposite direction. In fact, most market actions over these past few months remind me of the Shakespearean line from *Macbeth*, "...full of sound and fury, signifying nothing."

It is also worth noting that many observers have taken these minor moves as harbingers of future exciting developments, mostly positive, only to be disappointed when a follow-through has been almost entirely lacking. This is not offered as criticism – for several of those market actions not only have had what appeared to be technical significance, but

have also taken place during a time of apparent social and financial upheaval.

One reality which has confounded many commentators is that during this 'dull period' there have been numerous significant public developments such as incidents of violent terrorism; massive growth in debt; political divisions of a historic nature; currency upheavals in India and elsewhere; plans by several nations to institute guaranteed income laws, monetary inflation and a continual parade of central bank Quantitative Easing (QE) programs which have driven concerns regarding rampant fiat monetary growth.

When we look at the past 40 years of precious metals history, virtually all of these circumstances, at one time or another, have resulted in significant gold and silver rallies and yet, during the recent time frame, these developments have, for the most part, been virtually ignored by important markets.

It is almost as if equal and opposite forces have been gathered, leading many to believe that some sort of dramatic resolution to the various tensions might be forthcoming – but we still appear to be in a waiting mode.

This is all reminiscent of one of the most interesting comments I have ever read. It was presented by the late Vern Myers, one of the most prominent newsletter writers during the 1960s to the 1990s when he wrote about Great Britain from September 1939 through early April 1940.

As those familiar with that time frame might recall, Hitler's armies had just invaded Poland and that action violated British and French treaties guaranteeing Poland's safety. Britain then demanded that Germany withdraw immediately or else a state of war would exist. Germany did not withdraw, the state of war was declared – and then nothing of conse-

quence happened to Britain or France for the next six months.

People began to refer to the period as the "Phony War" but Myers explained that dramatic forces had been arrayed against each other and actual combat was inevitable – and that is exactly what took place as Germany invaded France and the Low Countries in spring 1940. Britain immediately sent their expeditionary army to join the growing battles – and the war was no longer phony.

I believe we are in a similar situation in this era. Forces supporting international socialism are in direct conflict – which we now see in our streets and universities – with free market and individual liberty advocates. Powerful monetary actions to stimulate economic growth should have but have not yet resulted in rapidly escalating inflation. Social disorders including burning cars, smashing buildings, rioting in the streets and blockading of universities should have but have not yet resulted in a premium for precious metals, and so forth.

Like Myers, I believe that forces such as these arrayed against each other will indeed eventually result in dramatic moves in precious metals, but it is now six years since the last bull market ended at US \$1,930 gold in 2011.

We can only wonder when the next true bull move will begin. ■

This material is taken from sources believed to be reliable and is provided for information only. Any investment decision should be made only after prior consultation with investment professionals. Leonard Melman is a financial and political writer who focuses on issues relating to the resource sector. Mr. Melman lives in Nanoose Bay, British Columbia, Canada and can be reached at lmelman@shaw.ca



Insights & Investments

by Bob Leshchysen

Black Iron's Shymanivske Project back on track

Black Iron Inc. [BKI-TSX] is an iron ore exploration and development company advancing its 100%-owned Shymanivske Project in Kryvyi Rih, Ukraine. It is important to note that the project is located over 400 km away from the war conflict in Eastern Ukraine.

The Shymanivske Project hosts a NI 43-101 compliant 645.8 Mt resource consisting of 355.1 Mt measured resources grading 32.0% total iron and 19.5% magnetic iron, and indicated resources of 290.7 Mt grading 31.1% total iron and 17.9% magnetic iron, using a cut-off grade of 10% magnetic iron. The project holds an iron ore mining extraction permit over 2.56 km² of land which expires November 1, 2024. The permit can be renewed in 20-year increments. Black Iron Inc. raised US \$35.9 million in its initial public offering at \$1.40 per share.

SITUATION IN UKRAINE

Ukraine's political and economic situation began to deteriorate significantly when the Government decided not to sign the Association Agreement and the Deep and Comprehensive Free Trade Agreement with the European Union in late November 2013. Political and social unrest began and then escalated into violent conflicts in February 2014, which occurred at the Maidan Square in the capital of Kyiv. Then, the Russian government decided to annex the Crimea Peninsula. This resulted in pro-Russian and anti-government groups protesting in Donetsk and Luhansk oblasts of Ukraine. These protests were supported by the Russian government when they sent troops disguised as volunteers to help in the protests.

The war activity resulted in a cease fire agreement called the Minsk protocol

being signed September 5, 2014. The conflict continues today even though such an agreement was signed.

The war in Eastern Ukraine has led to the deepening of the ongoing economic crisis, widening of the state budget deficit, depletion of the National Bank of Ukraine's foreign currency reserves, and as a result, a further downgrading of the Ukrainian sovereign debt credit ratings.

The war created investor uncertainty and, combined with the fall in iron ore prices, resulted in Black Iron putting the Shymanivske Project on care and maintenance in 2015-2016.

In the meantime, senior management developed a two-pronged approach to creating shareholder value. They continued to meet with several high ranking Ukraine Government officials to resolve the outstanding legal cases and acquire surface rights upon which the Shymanivske asset resides. Secondly, they began to review several opportunities of acquiring a minority interest in high quality mining assets to supplement the project.

The recovery process began in early January 2016 when BKI negotiated with Metinvest BV to buy back its 49% interest in Black Iron Cyprus, which owned 100% of the Shymanivske iron ore project for US \$5.6 million. In May 2016, Black Iron acquired a 6.3% interest in Carpathia Gold [CPN-CSE] for CAD \$4.0 million. Carpathian Gold has since been renamed Euro Sun Mining [ESM-TSX]. As part of this transaction, Matt Simpson, Black Iron's CEO, joined Carpathian Gold's board of directors, Black Iron's COO Les Kwasik has joined Carpathian Gold's management team and Paul Bozoki, Black Iron's CFO, has also become CFO of Carpathian Gold.

In January 2017, the City of Kryvyi Rih

called a public hearing to with deal surface rights. In March 2017, Shymanivske obtained approval from the Kryvyi Rih City Council to prepare a land allotment plan to lease the surface rights. This was a major milestone for the development of the project, which is now registered in the city's infrastructure development and land lease plans.

In February 2017, Black Iron made a strategic decision to appoint Michel Spektor, a successful Ukrainian businessman as President of the company. Spektor is former CEO of VS Energy International LLC, a Ukrainian conglomerate with holdings in electrical distribution and Dnipropetrovsk, one of Ukraine's largest steel mills.

In his capacity as president, his top priority will be to bring the Shymanivske ore body into production by obtaining all the required permits from the Ukrainian Government and negotiating contracts with local companies for construction and supply services. Since his appointment, Spektor acquired 2,955,000 shares of Black Iron.

In March 2017, Black Iron received some more good news, when it received written notice from the Dnepropetrovsk Ecology Department that the suspensions on exploration activities imposed by the Ecology Department on the Shymanivske Project in 2011 and 2012 have been lifted.

PROJECT ECONOMICS

On January 23, 2014, Black Iron updated its Bankable Feasibility Study incorporating pilot plant test work. The study outlines an operation producing 9.9 million tonnes/year of high-grade 68% iron ore concentrate, capital expenditure of \$1,097 million (excluding sustaining capital), life-of-mine freight on board operating expenditure of \$44.54/tonne, projecting a 48% Internal

Rate of Return, two-year payback and a \$3.3 billion Net Present Value at an 8% discount rate (pre-tax) using a long term CFR benchmark iron ore concentrate price estimate (62% Fe) of \$95/tonne and exchange rate of 8UAH:US \$1.

Ukraine's currency 'Hryvnia' has substantially depreciated since completion of the Bankable Feasibility Study, positively impacting project economics. Currently, the exchange rate is 26UAH:US \$1 and is expected to fluctuate between 26 and 30UAH:\$1 over the next five years according to Trading Economics.

FUNDAMENTALS OF THE PROJECT

Being in Ukraine, the Shymanivske iron ore deposit is strategically located between markets in Europe, Russia, Asia, and the Middle East. It is located 330 km southeast of Kyiv in central Ukraine in the well-known KrivBass iron ore mining district.

The mine site is 8 km from the city of

Kryvyi Rih. The ArcelorMittal operations purchased in 2005 are located immediately to the north of the property and Southern Iron Ore Processing (YuGOK)'s property is located immediately to the southeast.

The Shymanivske property has rail access to Western Europe and port access via Black Sea to global seaborne iron ore markets. Target markets may include Asia, Western Europe, Turkey, Middle East and Russia. There are several dry bulk tonnage ports, the closest being 140 km from mine site, which is a 20% to 25% shorter transport distance to China compared to North and South American producers. Power, port and rail access, combined with the local skilled workforce, provide potential to accelerate development and manage the amount of capital investment. A surplus of low-cost electricity is readily accessible from high voltage power lines that run beside the property 2 km from main state-owned rail line.

With the rebound in iron ore prices coupled with greater clarity on the war being constrained to Eastern Ukraine, Black Iron is refocusing efforts on putting Shymanivske into production. From November 2016 to the end of March 2017, iron ore prices were above US \$80/tonne, hitting a high of \$95/tonne in February. Morgan Stanley expects iron ore to average \$63 in 2017 and decrease to \$58 next year and \$54 in 2019.

Further, Ukraine's exchange rate has depreciated from 8 UAH:US \$1, as used in the Bankable Feasibility Study, to approximately 26 UAH:US \$1. Assuming all other factors in the BFS remain the same, Black Iron expects that the current exchange rate will result in lower operating and capital costs to construct the project and largely offset current lower iron ore prices. BBA will prepare a new PEA. The company has a market cap of \$13.6 million, \$2.7 million in cash and \$3.7 million in investments. ■



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Broker's Picks

by Stew Vorberg and Doug Wood

PROVIDENCE GOLD MINES – abandoned and forgotten for 85 years

We like high-grade gold assets that have the potential to be brought into production quickly and economically. We believe **Providence Gold Mines Inc.** [PHD-TSXV], formerly Red Hut Metals, has acquired a project that has those key attributes.

The company has an option to acquire the Providence Group of Mines in the Summerville Mining District, Tuolumne County, California. These mines lie within the eastern belt of the famous Mother Lode District. Numerous high-grade, past-producing, Mother Lode, gold mines are found within this belt, including the Carson Hill Mine (3,000 feet deep/produced 1.3 million oz. gold) and the Central Eureka Mine (4,855 feet deep/produced 1.8 million oz. gold) to name just a couple.

The first question that we always ask when an older, but intriguing asset is brought to our attention is; why hasn't it been mined out or re-developed yet?

In the case of the Providence deposit, the mine was opened in 1894 and shut down in 1907 during active and profitable operations. The owner was looking to sell the mine and did not extend the lease to the current operator at that time. The lower levels of the mine were then allowed to flood and were never re-opened. The mine was sold in 1911 but the new company was underfunded and only mined above the water table before they ran out of money. Operations were shut down in 1917 due to war conditions. In 1918, a large brush fire destroyed the surface workings and the mill and most of the mining records. From that point on, only

a limited amount of work was completed on the mine. The patented claims were acquired by the current owner in 1964.

These patented claims are what Providence Gold Mines has optioned. They cover the historic Providence, Consuelo and Goodenough mines which consist of four, high-grade, gold-bearing, quartz veins that are parallel to each other. An estimated 225,000 ounces of gold was recovered from 1894 to 1916. It is reported that a single chamber (stope) in the mine has produced up to 30,000 ounces of gold with grades between 0.5 and 0.8 oz/ton. Mill recoveries back then were very inefficient with maximum recoveries of only about 50%. It therefore stands to reason that these mines probably produced double what was reported prior to processing.

What is exciting to us is the fact that only one of the major mineralized stopes was mined to 1,100 feet deep. The other ore shoots were only mined down 100 to 200 feet. This is significant because the mines in the Mother Lode District are historically very deep, in some cases more than 5,000 feet deep. This means the Providence Mine remains open for expansion.

With modern exploration, extraction and milling technology, we believe Providence Gold Mines has an excellent opportunity to re-start and profit from this historic mine. Permitting a mine in California can be onerous but since the mine is on patented ground and in a relatively remote area of the state, permitting should not be an issue.

Providence has an option to earn 100% interest in its namesake property with a 2.5% royalty, of which 1% can be

purchased back for \$1 million. The company intends to perform a three-phase exploration program. Phase 1 will focus on geological mapping of surface rocks and underground workings to develop a structural model. Phase 2 will consist of drilling, dewatering and the reclamation of the mine. Phase 3 will focus on the sampling of underground workings and additional underground drilling and mine reclamation. The entire program is expected to cost just over \$2 million. ■

Stew Vorberg and Doug Wood are Investment Advisors with Mackie Research Capital Corporation (MRCC). This article was prepared, in part, under contract by Thomas Schuster. The opinions, estimates and projections herein are those of the authors and may not reflect that of MRCC. The information and opinions contained herein have been compiled and derived from sources believed to be reliable, but no representation or warranty, expressed or implied, is made as to their accuracy or completeness. The issuer(s) mentioned in this article may not be suitable for all investors. Please consult an investment professional for advice regarding your particular circumstance. Neither the author nor MRCC accepts liability whatsoever for any loss arising from any use of this article or its contents. Information may be available to MRCC which is not reflected herein. This article is not to be construed as an offer to sell or a solicitation for an offer to buy any securities. The information contained in this article is not intended to constitute a research report. Stew Vorberg and Doug Wood are beneficial owners of the company highlighted in this article.



At the Market

by Rodney Blake

Follow the Money

Upon reading the recent weekly market statistics, I couldn't help but notice that a very large proportion of the new TSX 52-week trading lows were being set by Canadian petroleum companies. And these were not just the usual hit and miss junior exploration companies but many were well established leaders of Alberta's oil patch including such giants as **Canadian Natural Resources** [CNQ-TSX], **Cenovus Energy** [CVE-TSX], **Husky Energy** [HSE-TSX] **Imperial Oil** [IMO-TSX], **Oil Sands Sector Fund** [OSF.UN-TSX], **Paramount Resources** [POU-TSX] and **Vermillion Energy** [VET-TSX], just to name a few. And while crude oil was trading at a three-month low of about US \$45/barrel, many of these well-established Canadian petroleum companies are trading at not just 52-week lows but at multi-year lows.

At the same time, some major international companies are selling their Canadian oil patch assets and leaving the country. **Royal Dutch Shell** [RDS-NYSE], **ConocoPhillips** [COP-NYSE] and **Apache Corp.** [APA-NYSE] are in this group. It's as if the international petroleum community – for reasons economic or political – is putting very little value on the future of Canadian oil. Giant international oil and gas companies tend to be slow moving and get behind the curve so it is not too surprising they are leaving after a multi-year bear market. It looks to me like we are, at or at least near, the bottom of the oil market.

Now, what is of even more interest here is that the buyers of those assets were not new players to the oil patch, but the same struggling Canadian petroleum companies

mentioned above. Canadian Natural took out Royal Dutch Shell. Cenovus bought out ConocoPhillips and Paramount purchased the remaining Canadian assets of Apache. These companies took the chance of further bruising of their already beaten down balance sheets to purchase these extremely undervalued assets. Could it be that the boards of these domestic companies knew something that the international's missed, or did they just purchase these assets to avoid them not being just dumped on an already oversold market.

I feel that just as the gold companies became lean and mean a few years ago after the price of gold fell to near US \$1,000/oz, the petroleum industry is going through the same process today – trying to adjust to a world of US \$45 oil. And adjust they will, driving down costs to make their industry profitable even at today's lower prices. When this happens, these large domestic acquisitions to consolidate their industry will be looked upon in a more favourable light that should be reflected in their share price. And if, as I suspect, the price of oil actually recovers, the current price of these stocks will look like screaming buys.

There's a theory in my industry that suggests one should buy a stock when the company's insiders are buying. The reasoning being that the insiders have some insight of the future and know when their company's share price is undervalued. I suggest this same thesis can work on a sector as well as a stock. Canadian petroleum companies are buying up assets in their own industry at deep discounted prices. These companies are the insiders of their sector and they know when the assets are

undervalued. Retail investors would be well served to look into doing the same and buy the shares of the companies that are buying their own assets. These companies and shareholders should be the beneficiaries of an improving petroleum market going forward. At the very least it is a low risk buy.

Let the informed leaders of the oil and gas industry be your guide. Or as Hal Holbrook's Deep Throat suggested to Robert Redford's Bob Woodward many years ago in the outstanding movie *All the President's Men*: "Follow the Money." ■

Rodney Blake is an Investment Advisors with Canaccord Genuity Wealth Management, a division of Canaccord Genuity Corp, Member-Canadian Investor Protection Fund. The information contained in this article is drawn from sources believed to be reliable, but the accuracy and completeness of the information is not guaranteed, nor in providing it does Rodney Blake, Canaccord Genuity Corp, or its subsidiaries, or affiliated companies, assume any liability. This information is current as of the date appearing in this article, we do not assume any obligation to update the information or advise on further developments relating to these securities. This article should not be considered personal investment advice or a solicitation to buy or sell securities. Canaccord Genuity and holdings of its respective directors, officers and employees and their associations, from time to time may buy or sell any securities mentioned herein. The views expressed are those of the author and not necessarily those of Canaccord Genuity Corp. He can be reached at 604-643-7567 or rod.blake@canaccord.com

STOCK WARRANTS

Great leverage in a bull market

by Dudley Pierce Baker

Stock warrants have literally been available for investors for many decades but are underappreciated and overlooked by most investors and even professionals

Through the years many large companies have had stock warrants trading, AT&T, Goldcorp, Bank of America, General Motors, Ford Motors, Wheaton Precious Metals (formerly Silver Wheaton) and Agnico-Eagle Mines, among hundreds of others.

By definition, a warrant is a security, issued by a company, giving the holder the right, but not the obligation, to acquire the underlying shares, at a specific price and expiring on a specific date in the future. This definition is similar to stock options or LEAPS, (Long-Term Equity Anticipation Securities) except that warrants are actually issued by a company, whereas options and LEAPS are created/written by investors.

Warrants are traditionally issued in connection with a company's private placement or equity offering as additional incentive to get the deal done. Warrants are mostly a matter of common sense and arithmetic, so let's not make this complicated.

Private placements versus trading warrants: Most companies will have stock warrants in their capital structure; however, many of those warrants will not trade as it is the decision of company management and their financial advisors as to whether the stock warrants will be listed for trading. By all means, if you have the ability to participate in a private placement on a company that you like and there are warrants as part of the offering you should

give serious consideration to participating. However, don't overlook the fact that there are many warrants trading in the United States and Canada on interesting companies in all industries and sectors, including the resource sector – my personal favorite.

Stock warrants can be issued by companies for as little as one year or for five years or more. Obviously, the longer the term of the warrant (time until expiration), the better your chances of great success. However, just because a stock warrant has a five-year life does not mean that you must hold the warrant for five years. With trading warrants, you can buy the warrants one day and sell them the next day.

Leverage: Warrants are all about the upside leverage over the common shares. I describe leverage as follows: The advantage that a warrant offers the investor is leverage, that is, a greater gain than would be possible with an equal investment in the common stock. Without this possibly of such leverage the investor would buy the common stock.

As a general rule warrants will be selling at a greatly lower price than the common shares, and can be bought for one-third to one-half of the price of the common shares, thus your capital investment is much, much less, saving you money versus buying the common shares.

At a minimum, warrants should outperform common shares by more than two to one. Thus, a gain in the shares of 200%

should see a gain of more than 400% in the warrants on those shares. Leverage is best illustrated by real examples; however due to space limitations in this article, I suggest you download for free from my website, *The Stock Warrant Handbook* which gives many examples of the great performance of stock warrants from the 1950s to present. However, I will share with you two recent examples in the last nine months, Northern Dynasty WT B, and Bank of America WT B, up 2,486% and 2,376%, respectively.

Thus, warrants are attractive to investors because of the potential leverage or magnification of the gain that they offer and the lower capital required over the common shares.

Perhaps your most important decision will be to decide which warrants to buy. Thus I ask, 'a warrant on what'? Which companies do you like that have stock warrants trading?

Alternatively, which companies do some of your favorite newsletters like, which have warrants trading? I see many companies being recommended and know that some of them have warrants trading and wonder how these newsletter writers/analysts can overlook the fact that there are warrants trading on their recommendations? I have no answer to that question, except to suggest that all investors need access to a complete listing of all warrants currently trading.

The market trend, ie, bull market, bear

market or trending can greatly determine your level of success. If you will, think about as a child getting on and off of a merry-go-round. When to jump on and when to jump off can be challenging and scary. Likewise, your timing with investments as to when to enter and exit your positions with warrants will determine your level of success.

Many of us investing in the resource sector believe that gold and silver bottomed in 2015 and the next few years should provide a very favourable climate for further advances. If we are correct in our assessment, investing in companies with good management, good properties and cash in the bank should see substantial gains. Long-term warrants trading on those shares should be of great interest to those investors looking to maximize/leverage those opportunities.

There is no reason to believe that the price of a warrant is going to rise without an increase in the price of the stock (of which the warrant is an option to buy). The investor chooses to purchase the warrant in lieu of the stock of a company because he anticipates that the price of the warrant will rise more rapidly than the price of the stock. The warrant then offers the investor a greater return than the stock, that is, the warrant offers greater leverage. But such potential leverage requires that the price of the stock will rise, and hence, the company itself must have potential for growth.

As I mentioned previously, the decision to allow warrants to trade or not lies solely with the company's management and/or their financial advisors. For those warrants which are trading you can buy and sell them just like you would shares. A freely tradable warrant on a Canadian company will have ".WT" in its symbol. In the US, a trading warrant will have a symbol ending in "W" or ".WS" on the NYSE, NASDAQ, AMEX or OTC markets.

If you find a five-year warrant trading on a company you like, you need to pay attention and thoroughly investigate for this could just be your next 10-bagger. Fact is, there have been many five-year war-

rants issued in the last 12 months.

While the focus on stock warrants is on the potential of their upside performance, we must inform investors of the risk with stock warrants. Warrants, like call options and LEAPS, have an expiration date. If the common shares are selling below the exercise price of the warrants on expiration day, the warrants will expire worthless. Investors should carefully monitor their positions in stock warrants and not go to sleep and let the warrants expire worthless. ■

Dudley Pierce Baker is the founder and editor of CommonStockWarrants.com offering subscribers the only database of all stock warrants trading in the United States and Canada. Neither Dudley Pierce Baker nor CommonStockWarrants.com is a financial advisor thus investors should consult with their own financial advisors before making any investment decisions. If you visit my website you can receive a free copy of "The Stock Warrant Handbook", Your Personal Guide to Trading Stock Warrants, which will give you much more information.



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TRADING STRATEGIES

Know WHY you own an exploration company

by Nancy Curry, Marketworks Corporate Communications

Having worked in the resource industry for over 20 years, I have had many heated discussions with investors as to whether buying an exploration company's shares is gambling or not – my view is that it is not. It is a high-risk venture for sure and not appropriate for all investors. When you buy a stock you become a part owner of that corporation with protections, access to information and opportunities for capital gains. Buying a lotto ticket, betting on the ponies or walking into a casino gives you no ownership – none!

Owning an exploration company and gambling do have one similarity – the dream of the big win. Exploring for commodities is nature's version of a treasure hunt – a powerful lure. However, share ownership provides an opportunity to implement strategies that can limit or reduce risk. As a shareholder, it is up to you to implement those strategies.

The most important question for investors is: Why am I buying this company? Sounds simple but I have found many investors aren't able to answer that question, except that they want to make money. Spend some time to study exploration companies. This is a specialized sector and you need to learn to recognize the risks and opportunities. Then make a plan and stick to it.

It sounds easy but it is probably one of the hardest things to do, especially if your company is moving in the right direction. Investors can easily be drawn into the euphoria of a junior stock that is "running". This is where people tend to abandon their strategies – emotion takes over – "the stock is going higher" and the greed factor takes hold.

History has shown that exploration is volatile and stocks don't go straight up (or down). Keep to your strategy. A great thing about the resource industry is that you don't have to feel like you have missed out. Selling at a profit is your objective and there is always another opportunity around the corner.

A strategy that can be helpful to reduce risk is to trade a portion of your position. As most resource investors know, the odds of finding an economic deposit are small – making a discovery that excites the market is far more common. Discoveries also generate many opportunities over the various stages of exploration to capitalize on that discovery before it is deemed economic or not. Your company does not have to find a viable mine for you to make capital gains. Trading a portion of your position can enable you to reduce your cost base while still participating in the company in case it hits the 'glory hole' or receives a take-out offer.

So how do you trade an exploration company? Here are some tips that may help you pick your comfort level and timing.

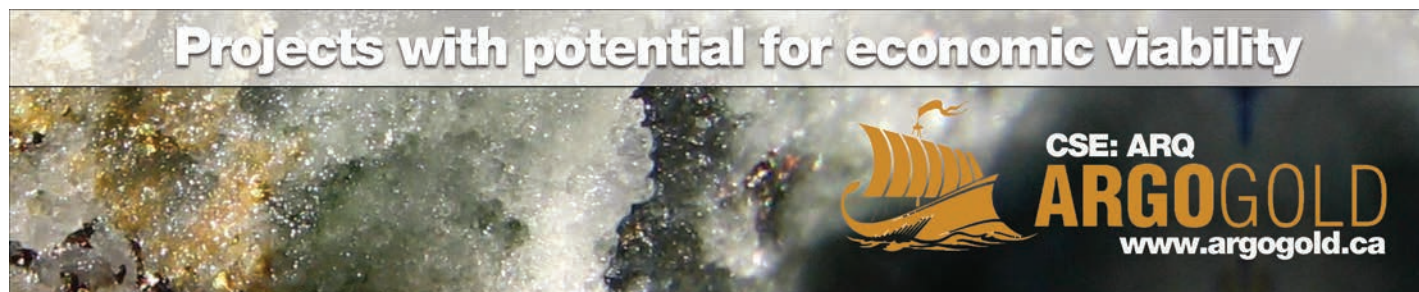
Pick a company that has a solid management team with a history of making discoveries, financing capabilities and a clear geological objective.

Understand the geological opportunity the company's project offers. If possible, find a similar successful geological model and see how the market reacted to the different stages of exploration. Sell into volume and buy when the company is quiet. Be patient.

Learn the different exploration stages (property acquisition, target development, initial drill programs, discovery, resource estimates, and economic studies) and their timing. Various stages offer different opportunities and risks. What stage are you comfortable with? How does the market historically react to a company moving successfully to the next stage?

Is there a seasonal work period? Can the company work all year and provide results or is there a quiet period when field work has stopped?

Whatever you do, don't make the rookie mistake of riding a failing stock down to nothing in the vain hope of getting your money back – cut your losses and have some funds left over for the next opportunity. ■



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Australian Update

by Greg Barns

Novo Resources shares soar on gold nuggets discovery

Western Australia's Pilbara region is best known as home to some of the world's largest iron ore deposits. But recent work by Novo Resources Corp. [NVO-TSXV; NSRPF-OTCQX] at its Karratha Project, a joint venture with Artemis Resources Ltd. [ARV-ASX], is exciting gold stock investors. On July 12, Novo Resources announced it had "found *in situ* gold nuggets up to 4 cm long in primary conglomerates from its first trench at its Purdy's Reward prospect." The company says, "Purdy's Rewards is part of an 8 km trend that has now been identified by Novo to be highly prospective for conglomerate gold mineralization considered analogous to the Witwatersrand in South Africa."

The announcement saw Novo Resources share price rocket from 0.87c before the announcement to \$1.45 on July 17.

Novo's total mineral holdings in the Karratha region cover 9,228.5 km² with 7,638 km² 100% controlled by the company. The Purdy's Reward prospect is part of a 1,536 km² mineral licence package that forms the farm-in/joint venture agreement with Artemis. Novo also has 54.5 km² of mineral license applications at the adjacent Comet Well Project, subject to a Memorandum of Agreement with vendors.

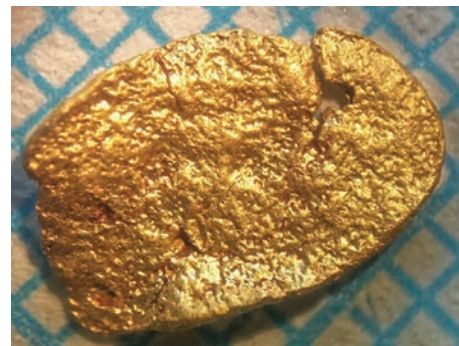
Novo's discovery of *in situ* gold nuggets at Purdy's Reward comes after reports that prospectors had made similar finds in recent years. Novo says that, "in recent years, metal detectorists have discovered gold nuggets, sometimes in concentrated patches, over an extensive area around the city of Karratha. In 2016, several particularly rich nugget patches were found in an area approximately 45 km south of Karratha near Comet Well and Artemis's

adjoining Purdy's Reward," the company said.

Novo Resources July 12 announcement describes the process leading to the finding. "Fresh rock was encountered at just 30-50 cm below a thin soil horizon. The floor of the first 2x2-metre pit was swept with a metal detector to evaluate distribution of nuggety gold, resulting in multiple zones of coarse gold being evident. Extrication of the bulk sample was undertaken with the help of a pneumatic chisel. Many coarse gold nuggets were readily visible during excavation, the largest of which was approximately 4 cm long."

So where to from here? Novo is testing samples to determine grade and plans to undertake full-scale, systematic, trench, bulk sampling along the strike of the conglomerate package at Purdy's Reward beginning in a few weeks. "Plans are also being made to test the use of large diameter reverse circulation drilling on down-dip projections of these conglomerates," the company said.

Novo is equally excited by the Comet Well prospect. Dr. Quinton Hennigh, Novo's Chairman and President, says that the five tenements comprising the Comet Well property cover about 6.5 km of strike along outcropping gold-bearing conglomerates and that the Purdy's Reward part sits immediately adjacent to Comet Well and covers an additional 1.5 km of mineralized strike. Comet Well and Purdy's Reward combined gives Novo control over 8 km of critical outcropping conglomerate-hosted gold mineralization. The company notes that in addition, it "has a 100% interest, through staking, in the entirety of down-dip extensions of the mineralized conglomerate horizon."



Novo Resources has found *in situ* gold nuggets up to 4 cm long in primary conglomerates from its first trench at its Purdy's Reward prospect, part of Novo's new Karratha gold project located in the West Pilbara, Western Australia. Source: Novo Resources Corp.

Dr. Hennigh says the company thinks "this conglomerate may underlie a large area on our ground south and southeast of Comet Well-Purdy's Reward."

Novo Resources' other Pilbara Project is the Beatons Creek open pit gold project, with a measured and indicated resource of 299,000 oz at 2.7 g/t gold and an inferred resource of 259,000 oz at 2.7 g/t gold. A resource upgrade is expected shortly. Importantly, Novo says, the expertise it has gained at Beatons Creek will be applied to Comet Well-Purdy's Reward where trenching and bulk sampling of known gold bearing deposits are planned.

The broader tenement package in the Pilbara is set for stream sediment sampling downstream from prospective stratigraphy-to help identify additional gold-bearing conglomerates. Reconnaissance level mapping will also be undertaken.

Novo Resources is certainly one gold company to keep a close eye on over the next few months. ■



Yukon Exploration and Mining Tour

by Peter Kennedy

“SWITZERLAND WITHOUT THE COWBELLS” is how one observer described the landscape around a Yukon mining property that is currently being explored by **Atac Resources Ltd.** [ATC-TSXV] and strategic partner **Barrick Gold Corp.** [ABX-TSX, NYSE]. It was a remark that neatly summed up the benefits and challenges that go hand in hand with exploring in a territory that is known for its sweeping mountain vistas, endless boreal forest, and placer gold mines.

While the scenic backdrops can be visu-

ally stunning, the mining camps often have no road access, meaning that getting in and out requires a trip in either a plane or a helicopter. “When you have to use a helicopter, money disappears very quickly,” said John McConnell, President and CEO of Victoria Gold Corp. which has a gold mine under development in the Yukon.

Lack of access to the power grid is also a key challenge for Yukon mineral explorers. Many are using diesel to keep the lights on. It explains why in spite of an unparalleled mining tradition (this is, after

all, where the Klondike Gold Rush took place), there is currently only one hard rock mine in operation in the Canadian territory. That one is **Capstone Mining Corp.’s** [CS-TSX] Minto Mine, where the primary product is copper. Hopes that this will soon change have been fueled by an ongoing exploration boom and the influx of some of the world’s leading gold miners. **Goldcorp Inc.** [G-TSX, GG-NYSE], **Barrick Gold Corp.** and even **Newmont Mining Corp.** [NEM-NYSE] have gained a toe hold in the region, either by optioning projects

LEFT: Julia Lane, Vice President, Exploration, centre, and Graham Downs, CEO of Atac Resources Ltd., right, examine diamond drill core. Photo by Peter Kennedy.

RIGHT: Alexco Resources is preparing to restart the Keno Hill District mill (lower left) near Mayo, central Yukon Territory. Photo courtesy Alexco Resources Corp.

in the White Gold area, or by taking a direct stake in a handful of the territory's best known exploration juniors.

In May 2016, for example, Goldcorp acquired the Coffee Project by snapping up Kaminak Gold Corp. in a share exchange deal worth of \$520 million.

Kinross Gold Corp. [K-TSX; KGC-NYSE] and **Agnico-Eagle Mines Ltd.** [AEM-TSX, NYSE] have each acquired a 19.9% stake in **White Gold Corp.** [WGO-TSXV], currently the largest land holder in the Yukon's White Gold District. The junior's exploration efforts are being guided by the Yukon's

best known prospector, Shawn Ryan. The shares issued to Kinross and Agnico-Eagle enabled White Gold to re-acquire the White Gold properties that Kinross bought when it bought Underworld Resources for \$138 million in 2010.

Named Canada's Prospector of the Year in 2011, Ryan is renowned for his work in seeking the bedrock source of the Yukon's famous placer gold deposits. It involves the use of methodical soil sampling techniques that led to the discovery of a geophysical



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anomaly that he optioned to Underworld Resources in 2004. In March 2010, Underworld was swallowed by Kinross in a deal that sparked a staking rush as well as more discoveries, including Kaminak Gold's Coffee gold project (named after the colour of a nearby river) and Comstock Metals Ltd.'s [CSL-TSXV] QV Project.

Back in March 2017, Goldstrike Resources Ltd. [GSR-TSXV] revealed that it had agreed to form a strategic alliance with Newmont Mining, the US mining giant that ranks among the world's largest gold producers. Under an agreement, Newmont can invest \$53 million in Goldstrike and its Plateau Project. Plateau has been described as a newly discovered gold system, covering 350 km², and containing high-grade mineralization. The company has a second property, the Lucky Strike, located in the heart of the White Gold District.

It has been widely reported that companies like Barrick and Newmont have been

attracted by the geological similarities between parts of the Yukon, and the fabled Carlin gold trend in Nevada. It appears to be why Barrick has acquired a 19.9% stake in Atac Resources Ltd. and formed a strategic partnership with the junior on a section of its Rackla gold property known as the Orion Project. Orion is one of three separate projects located on Rackla. The other two are the Osiris and Rau. Under the arrangement, Barrick can earn a 70% interest in Orion by spending \$55 million on exploration. Atac will top up the \$5 million that Barrick is expected to spend at Orion by spending roughly \$8 million at Osiris and \$2 million at Rau.

"We have the only significant Carlin-style mineralization outside of Nevada," said Atac President and CEO, Graham Downs. Atac is hoping to announce a maiden resource for the Osiris Project by 2018, Downs said.

The need for more access roads was clearly evident when *Resource World* trav-

elled to the project site in a helicopter. Reporters were picked up at an air strip on this massive property after travelling by plane from Dawson City. After touring the camp site, a Dutch fund manager said the junior will need to find a lot of gold in order to justify the cost of mine development. "I think they need 10 million ounces," said Terence van der Hout, a fund manager of Commodity Discovery Fund, which is based near Amsterdam in Holland. Not surprisingly, the 10 million ounce target appears to be what Atac is aiming for.

The Government is clearly well versed on the challenges the mineral explorers face. Ranj Pillai, Yukon's Minister of Energy, Mines and Resources said conversations with the officials in Ottawa this summer will centre on road access and electrical grid infrastructure. Pillai said projects that will likely get support for road access include The Coffee Project, where Goldcorp is hoping to get regulatory approval to begin mine construction

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by 2020. The company is also looking to upgrade access roads that have been used by placer miners travelling from Dawson City. "We really only need to build 30 km of new road," said Goldcorp Exploration Manager, Tim Smith.

While road access remains a challenge, there are also obvious advantages to exploring in the Yukon. When Goldcorp acquired Kaminak last year, it was a widely viewed as a move to improve its geopolitical risk profile by choosing a safer jurisdiction than Mexico, where some of its global operations are located. The territory's long history of mining means that mineral explorers can count on a supportive government. Officials from the Yukon government's economic development department recently accompanied reporters and analysts on a week-long tour of the territory's mineral exploration sector. An alliance of Yukon mining companies coughed up roughly \$150,000 to cover the cost of the trip, a sign that companies with assets in the Yukon are willing to work together in a bid to promote their projects. Representatives of companies which did not feature on the tour had a chance to meet with reporters during a conference in Dawson City.

Below is an update of some high profile companies active in the Yukon.

Banyan Gold Co.'s [BYN-TSXV] Hyland gold project southeast of Whitehorse marked the first stop on a recent media tour of the Yukon's mining sector. The project hosts a NI 43-101 compliant resource of roughly 400,000 ounces. The deposit type is sediment-hosted, structurally controlled mineralization located in the Selwyn Basin in southeast Yukon. The company also has an option to earn a 100% interest in 9,230 hectares of contiguous ground known as the Aurex-McQuestern claims from Victoria Gold and Alexco Resources. The project is located near the entrance to the road that leads into Victoria Gold's Eagle Gold Project, currently in an advanced stage of development. "With these options, Banyan will be the first company to consolidate ownership of these highly prospective intrusion-related gold properties


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that have been explored for precious metals since the turn of the last century,” said Banyan President and CEO Tara Christie.

Blind Creek Resources Ltd. [BCK-TSXV] is focused on the development of a lead-zinc-silver resource at the Blende Project in the Mayo Mining District. The company said it planned to launch a two-phase exploration program shortly. Phase I will test for deposit extensions and obtain mineralized material for additional metallurgical studies. Results of Phase I will provide the basis for a Phase II resource estimate and zinc-lead-silver recovery projections that will be outlined in a NI 43-101 compliant report to be released later this year.

Zonte Metals Inc. [ZON-TSXV] is gold-focused and aims to pick up exploration projects with large-scale potential. The company’s key holdings include the McConnells Jest Project, which covers 3,371 hectares and lies adjacent to Victoria Gold’s Dublin Gulch gold project. In June, 2017, the company said it had discovered a new target on the property, which was identified by gold in bedrock assays. The company said a total of 12 quartz-arsenopyrite-scorodite veins were found in samples and returned assays up to 31.3 g/t gold.

Alexco Resources Corp. [AXR-TSX, AXU-NYSE] offers silver production in the near future and exploration upside, said

the company’s Chief Operating Officer, Brad Thrall, when asked to outline the investment case for Alexco. After a four-year pause, Alexco is getting ready to restart production at the United Keno Hill Mine site, which ranks as Canada’s second largest producer of silver, behind Cobalt, Ontario. During an illustrious history, it produced 217 million ounces. When *Resource World* toured the property, a 400 tonne-per-day processing facility was already in place and Alexco was preparing to complete the construction needed to access ore in the Birmingham and Flame and Moth zones. “If we make all the right decisions we should be ready to go by the middle of next year,” said Alexco CEO Clynt Nauman. Alexco is gearing up to produce 3.5 million ounces of silver annually after re-negotiating a silver streaming agreement with one of its key financial backers, **Wheaton Precious Metals** [WPM-TSX, NYSE], formerly Silver Wheaton. The deal aims to eliminate some of the downside risk associated with the project.

Kestrel Gold Inc.’s [KGC-TSXV] principal asset is the King Solomon Dome located about a 30-minute drive south of Dawson City, close to placer discoveries that triggered the Klondike Gold Rush. Bulk samples taken by previous operators in Klondike Schist at the King Solomon

Dome property have returned assays up to 4 g/t gold in near surface areas surrounding the Dome. Back in May 2017, the company struck an option deal with prospector, Bernie Kreft, to acquire a 100% interest in the Val-Jual property 70 km southwest of Dawson. “Optioning the Val-Jual property gives the company an excellent foothold in the burgeoning White Gold district,” said Kestrel President and CEO, Kevin Nephin. Kestrel intends to explore what it described as a “high priority project.” To earn a 100% interest in the property, Kestrel must spend \$500,000 on exploration and drill a minimum of 2,500 metres. Previous work has outlined numerous gold and/or arsenic soil anomalies and mineralized zones.

Klondike Gold Corp. [KG-TSXV] Ever since the original Klondike discoveries triggered a massive gold rush in 1896, prospectors have been baffled by their inability to find the bedrock source of all the placer gold which has been extracted from the streams and tributaries around Dawson City in the Yukon.

Evidence of that work remains visible beside the road into Dawson because of the rock piles that make the area look a bit like a lunar landscape. It has been estimated that the Klondike gold fields may have produced as much as 20 million ounces of gold from placer mines. Yet that same area has yielded only 1,200 ounces

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of bedrock gold, most of it produced from the Lone Star Mine prior to the start of the First World War in 1914. Klondike Gold has been working to solve the mystery by assembling a large property position in the Kondike fields south of Dawson City. The company is backed by Vancouver financier, Frank Giustra, who holds a 14.6% stake in the company. Klondike's exploration efforts are being led by President and CEO, Peter Tallman.

Wellgreen Platinum Ltd. [WG-TSX] is currently in the midst of a re-branding exercise that is spearheaded by a new management team, led by President and CEO, Diane Garrett. While details have yet to be announced, it will likely involve a name change that will put an emphasis on other metals in the company's arsenal. As it stands, the Wellgreen Project hosts a measured and indicated resource of 362 million tonnes, containing 2 billion pounds of nickel, 1 billion pounds of copper and 6 million ounces of platinum

group metals, plus gold. That marked a 10% increase from the previous estimate. The latest estimate is based on the results of 74 drill holes that were completed since the company announced its last mineral resource estimate in July 2014. In the last 12 months, Garrett said the company has gained a better understanding of the deposit. Among the knowledge gained is the identification of future exploration drill targets at Wellgreen. The company has already shown that it can produce bulk concentrates. Among ideas being discussed is the production of separate nickel and copper concentrates, a move that could improve the economics of the project, the company has said. Meanwhile, Graeme Jennings, the company's Vice-President, Corporate Development, said the company is planning a 6,000-metre drill program to improve confidence levels in the current resource estimates.

Triumph Gold Corp. [TIG-TSXV] is an explorer which is focused on its wholly-

owned Freegold Mountain Project located in the Dawson Range gold-copper belt. The area also hosts Western Copper and Gold's Casino Project as well as Goldcorp's Coffee deposit. Goldcorp recently gained exposure to the road-accessible Freegold Project by taking a 19.9% stake in Triumph for \$6.3 million. In June, 2017 the company said it was launching a 13,000-metre diamond drilling program to test several targets that were identified during 2016, when the aim was to identify geological controls on mineralization at the Revenue and Nucleus porphyry deposits. Triumph has said it plans to spend \$4 million this year at Freegold Mountain. It is also undertaking reconnaissance mapping and sampling work on a second Yukon project known as Tad/Toro.

White Gold Corp. [WGO-TSXV] is currently the largest land holder in the Yukon's White Gold District, a region in that has attracted the interest of Kinross, Agnico-Eagle Mines Ltd. each of which



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own a 19.9% stake in the company. Its portfolio includes 30 properties covering 390,000 hectares. Headed by Shawn Ryan, the company's technical advisor, White Gold is using exploration techniques developed by Ryan's company GroundTruth Exploration to speed up the process of finding gold-bearing anomalies. Ryan is quick to stress the high risk nature of early stage exploration.

"We know that 95% of the things that we look at are not going to make the cut," he said. So, to save time and money, GroundTruth uses a number of tools, including air-borne drone imagery, GT Rotary Air Blast Drills (RAB) and portable X-ray fluorescence (XRF). A RAB drill is a remotely controlled platform that is mounted on a track and can travel almost anywhere on a mineral property. Used in combination with drones and XRF technology, it provides a more cost effective, environmentally friendly way to conduct exploration, allowing prospectors to extend their budgets while checking mineralized systems.

"What used to take us two field seasons at a cost of \$500,000, I can now do in a month for about \$100,000," Ryan said. However, he went on to explain that while RAB drills can be used to assess a project's mineral potential, companies still need to rely on diamond core drilling and reverse

circulation techniques.


Victoria Gold Corp. [VIT-TSXV] is developing what is expected to be the largest hard rock gold mine in the Yukon's history. The Eagle gold project, located 85 km north of Mayo, is expected to produce 200,000 ounces of gold annually using heap leach processing methods, starting in early 2019.

Victoria Gold President and CEO, John McConnell, said the mine is being built at a cost of US \$300 million and construction crews are preparing to start the "site capture phase," one that will focus on the high risk areas of the build. Those include heap leach earth works, crusher foundations, and the improvement of various roads at the mine site. However, McConnell said the company is facing a US \$40 million construction funding gap that will need to be filled within the next six to eight months. Production is expected to come from the Eagle and Olive deposits, which contain 2.7 million ounces of proven and probable gold reserves. Meanwhile, the company is currently probing other targets on the 555 km² property with the aim of "demonstrating additional, definable resource gold deposits across the highly prospective Dublin Gulch property," McConnell said. Back in April 2017, the company launched a \$6.2 million exploration program that will focus on the Olive-Shamrock deposit,

a high-grade satellite of the Eagle gold project. The company also plans to probe targets along the 13-km Potato Hills trend.

Western Copper and Gold Corp. [WRN-TSX, NYSE MKT] When news of the tailings pond breach at Imperial Metals Corp.'s Mount Polley copper and gold mine in British Columbia began to spread in August 2014, Western Copper officials were conducting a tour of the Casino Project. News of the disaster proved inopportune for Western Copper, which will likely face a higher level of scrutiny as it moves to secure permits for its own tailings facility. When reporters toured the Casino site recently, President and CEO, Paul West-Sells, said the permitting process will likely take another three years. The geology at Casino is typical of many porphyry copper deposits. The property hosts 965 million tonnes of proven and probable reserves, containing 4.5 billion pounds of copper and almost 9 million ounces of gold. That should sustain an open pit operation that is expected to cost \$2.5 billion to develop for a minimum of 22 years. Molybdenum will account for roughly 15% of the total revenue, West-Sells said.

The consensus is that this project may remain on the shelf for a while until copper prices improve. Another key challenge is the need to upgrade 130 km of access road. Meanwhile, the company



FINDING GOLD IN THE YUKON

Triumph Gold's Freegold Mountain project is located in the Dawson Range and covers a highly prospective section of the Big Creek fault zone. The project is endowed with three significant mineral deposits.

This includes the Nucleus Au deposit, the Revenue Cu-Au-Mo-Ag deposit and the Tinta Hill poly-metallic vein system, as well as numerous other gold showings.

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TRIUMPH GOLD

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FSE: 8N61

may move to upgrade the mine feasibility study released in January 2013. It is worth noting that **Osisko Gold Royalties Ltd.** [OR-TSX, NYSE] controls a 2.75% NSR royalty on future gold and copper production from Casino.

Golden Predator Mining Corp. [GPY-TSXV] is a well-funded gold exploration company with a focus on the Three Aces Project located northeast of Watson Lake. The company is currently benefitting from construction of infrastructure – including a bridge over the Little Hyland River, which allowed it to expand exploration on a number of high-grade gold zones via a fully-funded 40,000-metre drill program that will continue throughout 2017. There is no doubting that Golden Predator Executive Chairman, Bill Sheriff, has a gift for attracting attention to his projects. When asked recently why he wouldn't be attending a recent mining conference in Dawson City, Sheriff said, "It's because I am finding so much gold here." However, analysts are watching to see if he can find enough of the yellow metal to attract the interest of one of the major gold producers that are currently active in the Yukon. Golden Predator recently sold four White God District properties to **Taku Gold Corp.** [TAK-CSE].

Eureka Resources Inc.'s [EUK-TSXV] Yukon assets include the Luxor Project, which lies within the Dawson Range Gold Belt in west-central Yukon, and includes the Sheba, Ophir and Hav properties. Styles of mineralization there include porphyry deposits, mineralized breccias and lode and stock work veins. The Tak property is located 9 km northeast of the Coffee Creek airstrip, which is used for access to Goldcorp's Coffee Project. The property covers 1,722 hectares and extends northeast of Ballarat Creek, 4.7 km north of the Yukon River. Both Luxor and Tak are early stage exploration projects.

Pacific Ridge Exploration Ltd. [PEX-TSXV] has a long track record in the Yukon, where it is currently focused on early stage gold and base metal projects. Its property portfolio includes the Fyre Lake Project, which hosts copper-cobalt-gold volcano-



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- Airborne Survey completed, follow-up exploration July-August 2017
- Drill program completed at Gold Creek Project in Cariboo Mining District, BC



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genic massive sulphide mineralization. The property was recently optioned to **BMC Minerals Ltd.**, owner of the nearby Kudze Kayah copper-gold-cobalt project, also located in southeast Yukon. The company has about \$750,000 in the treasury and considers itself to be a low risk vehicle for Yukon exposure as the shares were trading at 6 cents on July 17, 2017.

Rockhaven Resources Ltd.'s [RK-TSXV] key asset is the wholly-owned Klaza Project, which is estimated to host an inferred resource of 1.36 million ounces of gold and 26 million ounces of silver. A Preliminary Economic Assessment has indicated that Klaza could produce approximately 630,000 ounces of gold and 11.4 million ounces of silver over a lifespan of 14 years. The PEA said the project could also yield 51.2 million pounds of lead and 52.4 million pounds of zinc during that period. The project is road accessible and benefits from its proximity to an electrical power grid. As \$30 million has already been spent so far, Rockhaven said work this year is focused on infill drilling, metallurgy and exploration drilling to identify new gold zones.

Independence Gold Corp. [IGO-TSXV] holds a portfolio of early stage gold projects in the White Gold District. The company is currently being run by Kendra Johnston, formerly manager of corporate development, after CEO Randy Turner was forced to take a leave of absence due to a family illness. He is best known for guiding Winspear Diamonds from the discovery of the Snap Lake diamond find in the Northwest Territories to its eventual sale to De Beers Mining for \$305 million. The company has said its 2017 Yukon exploration program will focus this year on the wholly-owned Boulevard Project, which lies adjacent to Goldcorp's Coffee Project.

The main aim is to define additional gold mineralization within the Sunrise-Sunset Zone, where earlier drill highlights include 4.36 g/t gold over 6.1 metres. The company is also planning to complete regional exploration activities to discover new targets at Boulevard and its other White Gold District projects. ■



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Liberty Silver acquiring Bunker Hill Mine in Idaho

by Ellsworth Dickson

LIBERTY SILVER CORP. [LSL-CSE] recently formalized its acquisition of the past-producing Bunker Hill Mine near Kellogg, northern Idaho, the largest zinc-lead-silver deposit in the Americas not in production. The mine was in operation between 1885 and 1981 and produced over 35.8 million tons of ore averaging 8.76% lead, 4.52 oz/ton silver and 3.67% zinc. During operations, over 40 distinct zones were discovered and 24 of these zones have been mined.

The acquisition price is US \$30,000,000. The initial US \$15,000,000 will be paid annually over five years from the closing date, of which US \$350,000 has been paid; US \$3,350,000 will become due by the closing date. The balance of US \$15,000,000 will become due in 10 equal installments beginning upon the anniversary of the closing date in 2023 and on each anniversary of the closing date thereafter.

The mine did not run out of ore when it closed. The mine and smelter complex suspended operations when previous owner, Gulf Resources, was unable to comply with new environmental regulations enforced by the Environmental Protection Agency (EPA). Consequently, the lead smelter, electrolytic zinc plant and milling facilities were closed and demolished. This was followed by the now completed EPA's Superfund remediation of the entire Silver Valley district.

During 1991, the Quill Zone Reserve was calculated as an SEC class of proven and probable reserve which totaled approximately 4.8 million tons grading 6.28% zinc, 2.27% lead and 1.16 oz/ton silver. The total for all the zinc zones including the Quill Zone, proven and probable reserves were calculated at 10.9 million tonnes grading 5.85% zinc, 1.23% lead and 0.58 oz/ton silver. Additionally the lead zones in the mine contain about 1 million tons of 7.79% lead, 1.32% zinc and 4.31 oz/ton silver. The company will bring part of the Quill Zone up to a NI 43-101 standard with modest sampling and drilling in the near future.

The 4.8 million tons in the Quill Zone is located between the 4th and 17th levels. Most of this is readily accessible for near-term mining at an initial 1,500 tons per day. The Quill Zone is known from historical drilling to continue to depths below the 2200 level and above the 2 level – a vertical extent of over 4,000 feet.

The Bunker Hill property package is patented (private) ground with no impediments to development. There is also excellent infrastructure at the mine site, including hoists, power, water, and, as it is in a historic mining region, an experienced underground workforce.



The hoisting machinery is in good shape at Liberty Silver's Bunker Hill Mine in northern Idaho. Photo courtesy Liberty Silver Corp.

Plans call for upgrading the CSE listing to the TSX later this year. This year, the company will also undertake underground sampling, drilling to confirm resources, sampling loose ore in the mine, and upgrading reserves to NI 43-101 standards, as well as ongoing engineering studies and the digitizing of the extensive existing data.

While still in the early planning stages, Liberty Silver expects the CapEx to get Bunker Hill back into production to be around US \$25 million with an expected production target date of within 12 to 18 months. Ore will be trucked to nearby existing processing facilities for custom milling and production of concentrates. The company will also consider building its own mill in the future if warranted.

Liberty Silver also holds the Trinity silver project in Nevada which is currently on hold.

The company is headed by Bruce Reid, President and CEO, who holds degrees in both geology and finance. Reid is the former Executive Chairman of Carlisle Goldfields, a Canadian-based gold exploration and development company, recently purchased by Alamos Gold; he was also President and CEO of U.S. Silver Corp.

Liberty Silver has about 24.3 million shares outstanding with management and insiders owning over 70%. ■

Upswing in mineral exploration expenditures and mine production predicted for 2017



Alaska mining and mineral exploration update

by Robert Simpson

A slight upswing in commodity prices is translating into more mineral exploration spending and improved mining revenue in Alaska. The state has consistently ranked as one of the top 10 jurisdictions for mineral exploration and mining in the annual *Fraser Institute Survey of Mining Companies*. According to the Alaska Department of Natural Resources Geological and Geophysical Division, in 2017, there are five major mines, 150 active placer operations, one coal mine and 23 active exploration projects. The department also reports there are 7,400 documented mineral prospects under claim in Alaska and investment in grass roots mineral exploration is on the upswing.

"This year, we've seen a larger spend at the few investment projects, and even more excitingly, exploration activity began at approximately a dozen new deposits where activity had not occurred in at least the last three years. A large part of this is improved commodity prices – explorers are gaining more access to capital, majors are more comfortable with investing in exploration, and new investors are appearing," said Deantha Crockett, Executive Director of the Alaska Miners Association

Alaska is the second largest gold producing state in America, with

The State of Alaska ranks in the top 10 in the world for minerals including:

COAL	13% of the world's coal	2
COPPER	4% of the world's copper	4
LEAD	4% of the world's lead	6
GOLD	8% of the world's gold	5
ZINC	6% of the world's zinc	6
SILVER	4% of the world's silver	9

Source: USGS 2015 estimates

LEFT: A diamond driller at work on the Trilogy Metals Arctic Project located approximately 470 km northwest of Fairbanks, Alaska. Photo courtesy Trilogy Metals Inc.

three producing hard rock mines including: Fort Knox, Pogo and Kensington, and several placer operations, including the Chandler placer project that produced approximately 806,907 ounces of gold in 2016.

Gold exploration continues to dominate the Eastern Interior Region of Alaska where **Freegold Ventures Ltd.**'s [FVL-TSX; FGOVF-OTC; FR4N-FSE] Golden Summit Project has had over 36,159 metres of drilling and three NI 43-101 compliant mineral resource updates completed since 2011. The current mineral resource using a 0.3 g/t cut-off is 61,460,000 tonnes grading 0.69 g/t (1,363,000 contained ounces) in the indicated category and 71,500,000 tonnes at 0.69 g/t gold (1,584,000 contained ounces) in the inferred category. In 2017, the company has drilled 27 holes and results demonstrate the potential to expand the current oxide resource.

Freegold has begun drilling at its Shorty Creek Project located approximately 125 km by paved road northwest of Fairbanks. The 2016 holes extended the copper mineralization intercepted in the 2015 program by over 245 metres to the southwest and to depth. Hole SC 16-01 intersected 434.5 metres (1,425.5 feet) grading 0.36% copper (0.57% copper equivalent), including 207 metres of 0.45% copper and was located 125 metres southwest of Hole SC 15-03.

After drilling almost 20,500 metres in 2016, **Contango ORE Inc.** [CTGO-OTCQB] and partner **Royal Gold Inc.** [RGLD NASDAQ] announced a resource estimate on the Main and North Peak areas of the Tetlin Project near Tok in the Eastern Interior. Using a cut-off grade of 0.5 g/t gold, the measured resource estimates are 97,000 ounces of gold, 260,400 ounces of silver and 1.6 million tons of copper. Indicated resources are estimated at 1.1 million ounces of gold, 4.5 million ounces of silver and 1.6 million tons of copper.

Following a positive prefeasibility study for its Livengood Gold Project in 2016, **International Tower Hill Mines Ltd.** [ITH-TSX; THM-NYSE MKT; IW9-FSE] has approved a US \$6.3 million budget to complete baseline environmental work, improve mineralization and evaluate alternative block models for production schedules and metallurgical work. The prefeasibility currently supports a 52,600 tons-per-day operation which will produce 6.8 million ounces of gold over 23 years. The capital costs are \$1.84 billion and all-in sustaining costs are US \$976 per ounce.

Coventry Resources Ltd. [CYY-ASX] resumed exploration of the Caribou Dome high-grade copper project, formerly known as Denali Copper. In 2016, the company completed a 14,000-foot exploration and validation drill program along a nearly half-mile mineralized trend. The company has identified numerous high-grade copper intercepts along the trend, including new massive-sulfide lenses and some previously unrecognized along-strike connectivity between lenses. Highlighted intercepts include 46.3 feet grading 9.9% copper, 23.0 feet grading 6.8% copper, and 11.5 feet grading 9.3% copper (drilled thickness).

The Southeastern region of Alaska is well known for its volcanogenic massive sulfide ore deposits (VMS deposits). Last

year at the Palmer Project near Haines, **Constantine Metal Resources Ltd.** [CEM-TSXV] announced a new inferred mineral resource of 8.1 million tonnes grading 1.41% copper, 5.25% zinc, 0.32 g/t gold and 31.7 g/t silver. In 2017, the company will drill 7,000 metres aimed at discovering new mineral deposits. Priority exploration targets include the Cap, Nunatak, HG, and JAG prospects that collectively define a several-kilometre-long corridor of mineralization that runs parallel to the South Wall-RW Zone trend which has been drilled extensively. The project is being advanced as a joint venture between Constantine (51%) and Dowa (49%), with Constantine as operator.

Hecla Mining Company's [HL-NYSE] 100%-owned and operated Greens Creek Mine is one of the largest and lowest-cost primary silver mines in the world, and is the cash generating engine of the company. Last year, Greens Creek produced 9.3 million ounces of silver at a cash cost, after by-product credits, per silver ounce of US \$3.84 (a non GAAP measure), and 53,912 ounces of gold. Production in 2017 is expected to be 7.4 to 8.0 million silver ounces at a cash cost, after by-product credits of US \$2.50 an ounce. Exploration continues to keep reserves well ahead of production at the silver-rich Greens Creek Mine near Juneau. Definition drilling in the NWW and Deep 200 South zones con-

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Ecuador
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tinues to show promise while underground exploration continues to follow these zones down dip. Surface drilling continues to explore the 23-square-mile land package in search of additional resources or an entirely new deposit.

Ucore Rare Metals Inc. [UCU-TSXV; UURAF-OTCQX; U9U-FSE] has announced an updated mineral resource for its Dotson Ridge rare-earth-element deposit at Bokan Mountain. The updated resource estimate indicates the deposit has a total inferred and indicated resource of 6.4 million tons at 0.602% total rare earth oxides. The company is currently scoping a production plant to process heavy metals.

The southwestern region of Alaska is dominated by the Pebble Project, owned by the Pebble Limited Partnership – **Northern Dynasty Minerals Ltd.** [NDM-TSX; NAK-NYSE], a member of the Hunter Dickinson Group. Pebble is considered one of the largest undeveloped copper deposits in the world. The current resource estimate includes 6.44 billion tonnes in the measured and indicated categories containing 57 billion pounds of copper, 70 million ounces of gold and 344 million ounces of silver; and 4.46 billion tonnes in the inferred category, containing 24.5 billion pounds of copper, 37 million ounces of gold, 2.2 billion pounds of molybdenum and 170 million

ounces of silver. In May 2017, the company and the US Environmental Protection Agency reached a settlement which allows the Pebble Project to proceed into permitting under the Clean Water Act and National Environmental Policy Act moving the project closer to submitting a final Environmental Impact Statement.


NovaGold Resources Inc. [NG-TSX, NYSE MKT] and partner **Barrick Gold Corp.** [ABX-TSX, NYSE] have begun a US \$8 million drill program to further optimize the Donlin Creek Project. The project operator is drilling the additional holes to better understand the exact location and grade of the gold-bearing-ore deposit. The partners plan to use any new data they collect to test the models they developed through their previous research. The Donlin Creek Project currently has 9 million ounces of gold measured and indicated resources with a grade averaging 2.2 g/t gold. A recently updated Feasibility Study projects the project to average approximately 1,100,000 ounces of gold production per year (over an anticipated 27-year life).

Redstar Gold Corp. [RGC-TSXV; RGCTF-OTCQB; RGG-FSE] continues to drill on its Unga Gold Project, where the recent 12-drill-hole exploration program, totaling 2,287.6 metres has traced the Shumagin Gold Zone approximately 1,350


metres, up from 950 metres in 2016. The work shows that the structure remains open along strike and length. The next drill program will be focused on completing a mineral resource estimate. The company is planning to also drill test other high priority gold zones such as Orange Mountain, Empire Ridge, Aquila/Amethyst, and a newly discovered foot-wall vein to the north of the Shumagin Gold Zone.


At the Red Dog Mine in northwestern Alaska, operator **Teck Alaska Inc./Teck Resources Ltd.** [TECK.B-TSX; TECK-NYSE] continued infill and definition drilling ahead of mining in the Aqqaluk pit. At the end of 2016, proven and probable reserves at the mine stood at 62.4 million tons with an average grade of 14.6% zinc, 4.1% lead, and 2.15 oz/ton silver. Teck continued an exploration program on its Noatak claim block, drilling 41,000 feet in the Anarraaq-Aktigiruaq area about eight miles northwest of Red Dog.


In the Northern Region of Alaska, **Trilogy Metals Inc.** [TMQ-TSX; TMQ-NYSE-MKT], formerly NovaCopper, continues to de-risk the Arctic Project, completing an updated resource estimate which at a base case 0.5% copper equivalent cut-off grade is estimated to contain in-pit indicated resources of 36.0 million



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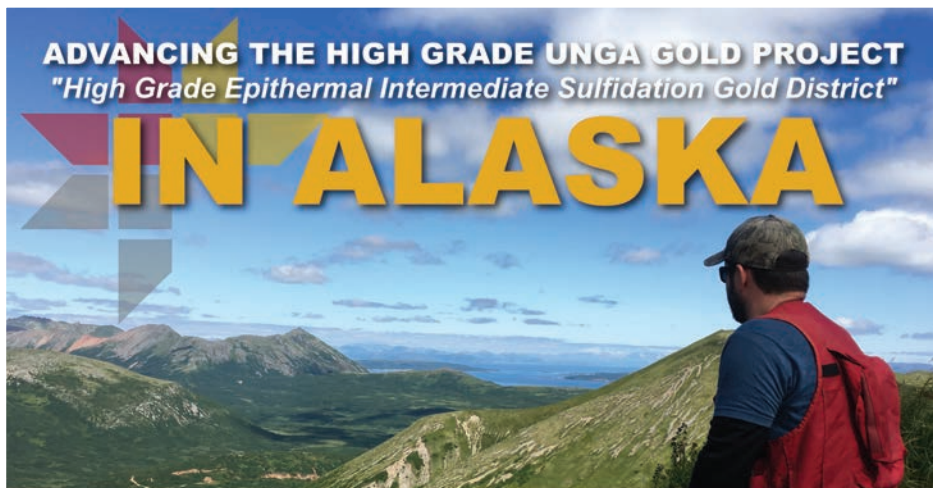
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tonnes at 3.07% copper, 4.23% zinc, 0.73% lead, 0.63 g/t gold and 47.6 g/t silver for 2.4 billion pounds of contained copper and 3.4 billion pounds of contained zinc. The company has also begun to prepare a pre-feasibility study which is anticipated to be complete in Q1, 2018. The project is in the Ambler Mining District about 470 km northwest of Fairbanks.

At Trilogy Metal's Bornite Project, approximately 25 km southwest of the Arctic Project, a 12,000-metre (US \$10 million) exploration drill program is underway and focused on drilling the extensions of the mineralization last drilled by the company in 2013.

During the 2013 exploration program the company completed 8,142 metres of drilling with 4,684 metres drilled at the Ruby Creek Zone and 3,458 metres drilled at the South Reef Zone where the company highlighted drill hole RC13-224 which intersected two mineralized intervals, starting at 513.3 metres and ending at 754.6 metres (241.3-metre interval), for a combined 236.0-metre composite interval with a weighted average grade of 1.90% copper, and comprised of 229.4 metres at a grade of 1.73% copper and 6.6 metres grading 7.70% copper.

In Alaska's Western Region, the **Graphite One Resources Inc.** [GPH-TSXV] Graphite Creek Project has an indicated resource of 17.95 million tonnes at 6.3% graphitic carbon with an inferred resource of 154.3 million tonnes at 5.7% Cg, using a 3% cut-off grade. In January 2017, Graphite One completed a preliminary economic assessment which projected a Net Present Value for the project on a pre-tax basis of US \$1,037 million using a 10% discount rate, with an Internal Rate of Return of 27%. On a post-tax basis, the NPV is projected at US \$616 million using a 10% discount rate, with an Internal Rate of Return of 22%. Annual production of CSG and other graphite specialty materials is projected at 55,350 metric tonnes when full production is reached in year six. A minimum of 40 years of indicated and inferred resources grading 7% Cg (graphite) have been identified. ■




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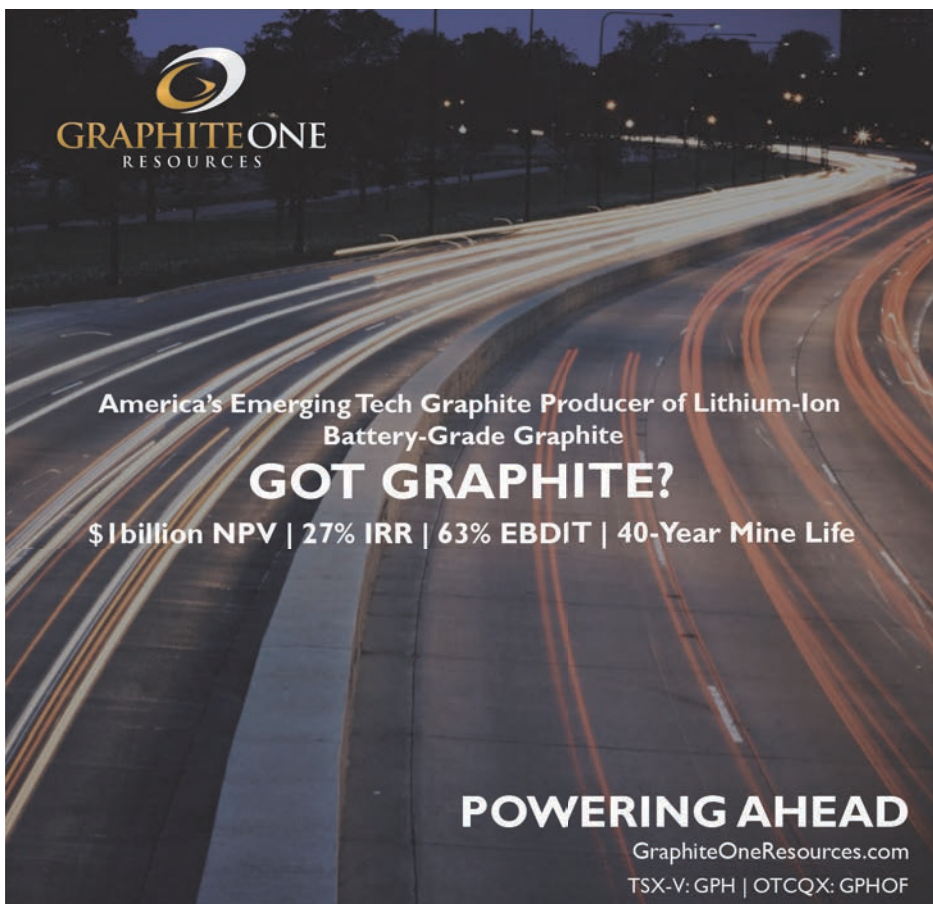
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 0.7 m of 133.0 g/t Au & 422 g/t Ag
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Rare Earths

Unseen but just about everywhere

by Ellsworth Dickson

At the height of the boom in rare earth prices in 2011, when China was restricting exports of its rare earths elements (REEs) products, some 241 junior explorers jumped on the bandwagon. However, when China, the world's largest producer of rare earths, eased export restrictions, the market collapsed. Many junior rare earths explorers faded from the scene but some still target REEs.

While rare earths may not be the current flavour of the month, they deserve more respect. As Dr. David Trueman, PGeo., a rare earths consultant whose clients include Avalon Advanced Materials and Cascadero Copper, told *Resource World*, "Without rare earths our personal, corporate and medical lives would be deficient compared to life with rare earths. These critical elements are found in your computer hard drives, hearing aid batteries, MRI machines, your car, smart phones, wind turbines and lasers to name a few applications."

Most readers of *Resource World* magazine are familiar with the traditional mining and minerals sectors such as gold, copper, zinc and so on; however, the rare earths sector is different in that it is completely dominated by China – from mining and processing down through the entire value chain to your computer and the magnets in your car. But what does that actually mean?

By supplying 97% of the world's rare earths and their resulting products, China is able to control prices and has effectively created an uneven playing field for the rest of the world. This is because China's rare earth sector is a government-sponsored monopoly. The communist Chinese government has ownership positions in the hundreds of companies along

the value chain. At the same time, China is far ahead of other countries in developing its rare earths industry as tens of thousands of highly educated professionals are employed in the sector.

This information came to light at the recent Argus Americas Rare Earth Summit held at the Rancho Bernardo Inn near San Diego, California when a number of rare earth experts gave presentations covering the various aspects of the rare earths sector.

One of the presenters was Feng Yunguang from the China Chamber of Commerce of Metals, Materials and Chemicals Importers and Exporters. He said that China does not release any official statistics on REE production or stockpiles. However, he said (rather vaguely) that total production might be around 250,000 tonnes of REEs annually with maybe 150,000 tonnes being illegally mined. He added that the Chinese government is now cracking down on illegal REE mining and, to date, 23 companies have been "punished" whatever that means. I heard other figures such as 160,000 tonnes per year production; it's hard to get accurate figures. Feng said that Chinese recycling of REEs is about 10,000 tons.

In his presentation, Jim Kennedy, President of **ThREE Consulting** of St. Louis, Missouri, said that REEs have been a top priority for the last three Chinese leaders. Consequently, China is the only country with a fully integrated value chain of REEs. "If you control the value chain, you control everything," he noted.

Kennedy added that creating an entire value chain is very expensive and beyond the capability of any company – or even a country – and perhaps a multi-national,

privately funded and operated co-operative might be an idea worth considering. After all, the REEs value added sector is a US \$7 billion industry, Kennedy said.

Demand for REEs has been steadily growing from ~127,500 tonnes rare earth oxides (REOs) to ~153,000 tonnes REOs in 2016, with growth mainly in glass and magnet applications. Permanent magnets utilize about 80% of neodymium production. US demand for cerium is growing while europium demand is declining.

Continuing their practice of domination, in mid-June, a Chinese consortium (MP Mine Operations LLC), including REE miner Shenghe Resources, placed the winning bid of US \$20.5 million for bankrupt Molycorp, owner of the only US-based REE mine – now closed – at Mountain

RARE EARTHS

Neodymium – Nd
Europium – Eu
Cerium – Ce
Dysprosium – Dy
Terbium – Tb
Lutetium – Lu
Praseodymium – Pr
Ytterbium – Yb
Thulium – Tm
Erbium – Er
Holmium – Hb
Lanthanum – La
Samarium – Sm
+Scandium – Sc
+Yttrium – Y

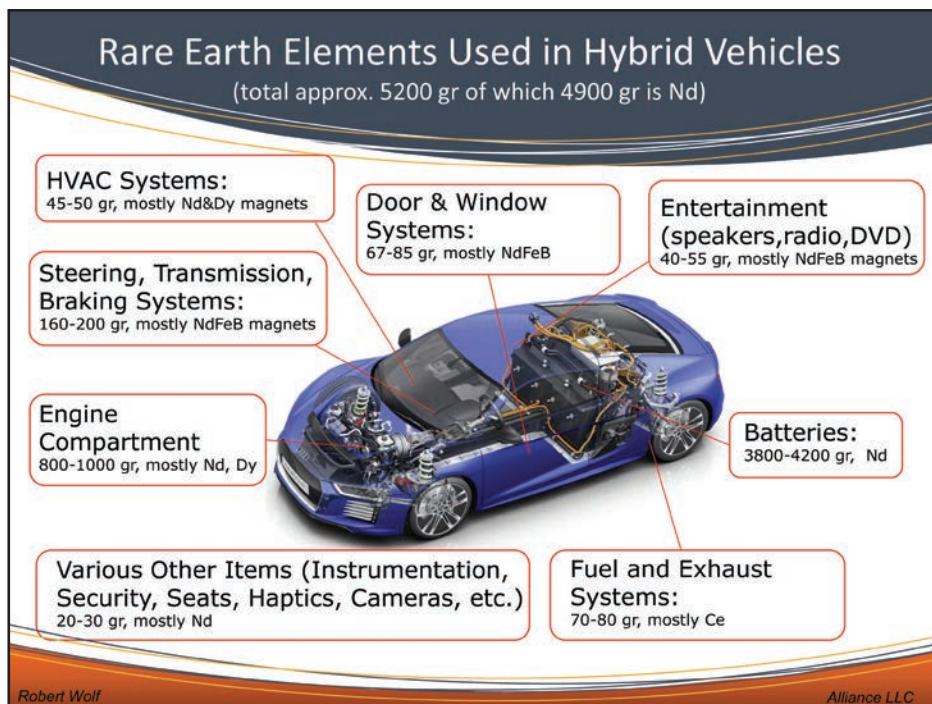


Photo-illustration courtesy Alliance LLC.

Pass in California. Michael Silver, CEO of American Elements, has made a case to the Whitehouse to nationalize Mountain Pass.

SURPRISING GEOLOGICAL DISCOVERY

Researchers at Penn State University have recently discovered that there are significant rare earths present in the coal deposits and their overburden clays in Pennsylvania and West Virginia. The US government has noted this and on June 17 Fox News reported that the government is investing \$7 million into researching ways to mine and produce REEs from coal and related clays.

In her presentation at the summit, Mary Anne Alvin, Technology Manager for Rare Earth Elements at the National Energy Technology Laboratory, explained how the Department of Energy (DOE)-NETL has launched a "Feasibility of Recovering REEs" program. The program includes 15 active projects that aim to validate the technology for recovering saleable REE products from coal and related clays.

This geological discovery has not gone unnoticed in Canada. At the University of British Columbia in Vancouver, first year PhD student Vinoth Kuppusamy, under the supervision of Dr. Maria Holuszko, is writing his thesis on the rare earths potential of BC coal deposits.

REE MANUFACTURERS

HEFA Rare Earth Canada Co. Ltd. of Richmond, British Columbia manufactures a variety of rare earth products that include rare earth oxides and metals up to a purity of 99.9999%. Other products utilize gallium, tantalum, phosphors, zirconium and rare earths mischmetals (mixed metals).

Alliance LLC of Valparaiso, Indiana, manufactures a variety of magnets – some utilizing REEs, including neodymium and samarium, and some using other elements such as AlNiCo. To give you an idea what kind of demand there is for neodymium magnets, Alliance's Robert Wolf pointed out at the San Diego conference that wind turbines use 594 lbs of neodymium magnets. If ordinary ferrite magnets were used, turbines would weigh 4,752 lbs – making them too heavy for wind turbines.

Speaking of energy, as an aside, Dr. David Trueman noted, "If Japan switched to neodymium magnets in the country's air conditioning pumps, they would cut their energy usage in half. I expect this to proceed slowly over the coming years."

RECYCLING REES

Recycling REEs is an obvious idea considering how many products – such as computer hard drives – contain valuable rare earths. There are price challenges

but some companies are giving it a go. In his presentation at the conference, Casey McNeil, CEO of REEcycle, noted that some 100 million computer hard drives are recycled each year in the US which represents 500,000 – 600,000 kilograms of REEs. His four-year old company is developing a technology to economically recycle computer hard drives whose magnets contain 33% REEs (NdFeB).

McNeil said the four pillars of REE recycling are: 1) magnet acquisition 2) by-product elimination 3) separation & purification 4) reuse in manufacturing.

However, recycling won't be a business unless it is economically viable. In this case, it means that recycled REEs can't cost more than 'virgin' REEs from China or nobody would buy them.

Dr. Robert Fox of the Idaho National Laboratory suggested in his presentation that "We need a bulk-scale processing system that includes collecting old REE-bearing products." He explained that there are different levels of recycling – from easy re-assignment to complete destruction and re-birth.

At the conference, Cameron Davies of **Rare Earth Salts**, said, "If you can't be profitable using Chinese domestic pricing, you won't survive." He remarked that there are now at least six new REE separation technologies being developed that claim to be environmentally friendly.

OTHER RARE EARTHS OPPORTUNITIES AND BENEFITS

Dr. Trueman explained that university-level research on rare earths can lead to greater understanding of how the Earth was formed and that can lead to new exploration ideas. He added that while China dominates the light REEs (LREEs) that is not quite the case for heavy REEs (HREEs) which opens up interesting exploration opportunities targeting the heavies. Currently, LREEs account for 85% of production and HREEs account for 15%.

RARE EARTHS NOVEL

One of the attendees at the Argus Americas Rare Earth Summit was author Ann Bridges who recently published a novel about rare earths entitled *Rare Mettle* which Dr. Robert Latiff, retired Major General of the United States Air Force describes as ‘...a gripping fictional account of a serious, real-world problem...’

In her novel, Ann Bridges exposes the potential devastation of a Western world reliant on Silicon Valley technology, and ultimately taken hostage by a Chinese embargo of rare metals crucial to sustaining our way of life – and how we defend it. If it is not at your local major book seller, it is available in both paperback and ebook versions through Ingrams Distribution Services and Amazon.

RARE EARTHS EXPLORATION, PRODUCTION & TRADING

While there are actually over 200 rare earths-bearing minerals, only three dominate commercial extraction: monazite, bastnasite, loparite plus xenotime (yttrium/dysprosium).

Canada Rare Earth Corp. [LL-TSXV; RAREF-OTC] operates a rare earth concentrate trading business. Tracy Moore, CEO, explains, “We have now completed the purchase and sale of 301 tonnes of concentrate with increasing momentum: 6 tonnes in the December 31, 2016 quarter; 25 tonnes in the March 31, 2017 quarter;

and so far 270 tonnes in the quarter to end June 30, 2017.”

The company has also completed the purchase and sale of 90 tonnes that are related to but separate from the purchase and sale of 180 tonnes that alone generated proceeds of \$386,000 as announced on May 2, 2017.

A further 375 MTs of concentrate is on schedule for purchase and sale in June that, if completed, would result in 645 tonnes of concentrate transacted in the June 30, 2017 quarter.

Peter Shearing, COO, said, “We have developed a solid working relationship and system with the supplier announced in September 2016 with an understanding of transacting 16,500 tonnes over a 36-month period. Additionally, we are in discussions with a number of prospective suppliers to augment the supply required to meet the demands of our customer base.”

Commerce Resources Corp. [CEE-TSXV; CMRZF-OTCQX; D7H-FSE] has developed significant REE resources at its Ashram deposit on the Eldor property in the Labrador Trough of northern Québec. An economic evaluation, based on a March 2012 resource estimate, used a base case geologic cut-off grade of 1.25% total rare earths oxides (TREO) and provided 1.59 million tonnes averaging 1.77% TREO of measured resource, 27.67 million tonnes averaging 1.90% TREO of indicated resource, and 219.8 million tonnes averag-

ing 1.88% TREO inferred.

Recently, Commerce executed a memorandum of understanding with **Ucore Rare Metals Inc.** [UCU-TSXV; UURAF-OTCQX] to integrate feedstock from Commerce’s Ashram deposit with Ucore’s REE separation facility and strategic metals complex. Commerce will provide mixed rare earth carbonate concentrate sufficient to perform bench and pilot-scale testing of metallurgy and metal separation metrics of the prospective feedstock. Bench work will be conducted by IBC Advanced Technologies of American Fork, Utah, with pilot-scale test work expected to take place at the SuperLig-One MRT (molecular recognition technology) pilot facility in Vineyard, Utah. The objective of the test work is to complete a definitive assessment of the suitability of the Ashram concentrate as potential feedstock for the strategic metals complex, with a view to a subsequent long-term supply partnership and off-take relationship.

Matamec Explorations Inc. [MAT-TSXV; MHREF-OTCQB] has been advancing its Kipawa heavy rare earths project 140 km south of Rouyn-Noranda, Québec. The company has been selectively mining, as well as conducting beneficiation studies, hydromet, purification and separation tests, environmental studies and has designed a second demonstration pilot plant. Matamec has also partnered with leading universities and research centres to improve project efficiency.

Kipawa is a joint venture owned at 72% by Matamec and 28% by Ressources Québec (acting as agent of the Government of Québec); Toyota Tsusho Corp. (Nagoya, Japan) holds a 10% royalty on net profit in the deposit.

Omega Resources Inc. [GMA-TSXV; GOMRF-OTC] is developing the 100%-owned Montviel Rare Earths Elements/Niobium project about 100 km north of Lebel-sur-Quévillon, Québec. Indicated resources (Pr_2O_3 , Nd_2O_3 , Eu_2O_3 + Nb_2O_5) are 82.4 million tonnes at 1.51% TREO + niobium. Inferred resources are 184.2 tonnes of 1.43% TREO + niobium. These resources also include a dysprosium zone with indicated resources of 0.37 million tonnes and

New African rare earths mine opening

RAINBOW RARE EARTHS [RBW-LSE] hosted His Excellence The President of the Republic of Burundi and other notable guests at an inauguration ceremony for its Gakara Rare Earths Project on July 21. Guests attended a series of speeches and traditional Burundian cultural celebrations in the town of Mutambu, near Rainbow’s first mining area at Gasagwe, where first production and sales of rare earth concentrate is targeted for Q4 2017.

Eales said, “Gakara is the most advanced mining development project in Burundi and Rainbow was pleased to welcome so many honoured guests to our ceremony. We value highly all of the support we received from the Government of Burundi and the local population.”

Gakara, which operated for 30 years until 1978, hosts lanthanum, cerium and neodymium with in-situ grades 47-67% Total Rare Earth Oxides (TREO). First production and sales will be to offtake partner, Thyssenkrup Raw Materials. CapEx was only \$2.23 million.

inferred resources of 2.58 million tonnes.

Globex Mining Enterprises Inc. [GMX-TSX; GLBXF-OTCQX; G1MN-Germany] is essentially a mineral bank and has interests in about 145 properties covering a wide variety of commodities including the Shortt Lake gold-REE mine in Québec.

Medallion Resources Ltd. [MDL-TSXV; MLLOF-OTC] is developing a low-cost, near-term REEs production by exploiting monazite, a rare earth phosphate mineral widely available as a by-product from mineral sand mining operations. The company and **Rare Earth Salts Separations and Refining LLC**, a leading materials technology company, have executed a non-exclusive commercial agreement to produce, market and share revenues from the sale of finished rare-earth products. Medallion would produce and supply rare-earth concentrate to Rare Earth Salts for separation and refining into marketable rare-earth oxides. Initial production volumes are expected to be 500 tonnes/year of REO beginning in 2019 and growing over time to 3,000 tonnes/year.

Lynas Corp. [LYC-ASX], which is slowly gaining market share, is an Australian rare earths mining company with two major operations: a mining and concentration plant at Mount Weld, Western Australia, and a refining facility at Kuantan, Malaysia.

Blue Line Corp. of San Antonio, Texas manufactures REE chemicals.

SonoAsh LLC of Vancouver, BC has developed a process that provides an economically viable way of recovering strategic metals and REEs from coal ash impoundments.

Innovation Metals Corp. is a private Toronto-based company that provides low-cost separation and purification processes to the critical metals industry, enabling mining companies to compete in today's global marketplace. The company developed the RapidSX™ process using the solvent-extraction separation process. The patent-pending process has been used successfully at pilot scale, to separate REEs, as well as nickel and cobalt.

Avalon Advanced Materials Inc. [AVL-TSX; AVLNF-OTCQX; OU5-FSE] has been focusing on its Separation Rapids lithium

and East Kemptville tin-indium projects; however, the company still holds its feasibility-stage Nechalacho REEs Project at Thor Lake, Northwest Territories. Nechalacho will be re-activated when the REEs market improves.

Greenland Minerals and Energy Ltd. [GGG-ASX; GDLNF-OTC; FSE] is developing the Kvanefjeld Project in Southern Greenland. A subsidiary of leading rare earths company **Shenghe Resources Holdings Ltd.** has invested \$4.625 million to acquire a 12.5% stake, as a precursor to a more strategic relationship. The project, near deep tidewater, hosts a JORC compliant resource of 10.4 million tonnes of TREO, 370,000 tonnes of heavy REO, 575 million lbs U₃O₈, 840,000 tonnes of yttrium oxide and 2.24 million tonnes of zinc.

Quest Rare Metals Ltd. [QRM-TSX; QRMLF-OTC] has filed a Notice of Intention to claim bankruptcy. PricewaterhouseCoopers has been appointed trustee. The company said the decision was made based on a major indus-

trial conglomerate not following through with an investment in Quest's 100%-owned Strange Lake rare earths project 225 km northeast of Schefferville. This plan will allow Quest to restructure the company and find other funding sources.

Quest reported identifying potentially significant improvements to the mineral processing flowsheet. If realized, a concentrate better suited for hydrometallurgical processing with a higher grade of combined dysprosium, terbium, praseodymium and neodymium could be produced on-site at its proposed mining and milling facilities.

Indicated resources are 278.13 Mt at 0.93% TREO. Inferred resources are 214.35 Mt at 0.85% TREO. A PEA stated the IRR would be a pre-tax 20.1%, CapEx of \$1.631 billion, an NPV of \$1.416 billion and a payback of 5.3 years.

Namibia Rare Earths Inc. [NRE-TSXV; NMREF-OTC] is advancing its Lofdal rare earth project that covers a 200 km² carbonate complex with exceptional heavy rare earth-enrichment (>80%). The project is

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FSE: K1SN

OUR VISION: Silver/Lead/Zinc Production

2017 A New Beginning



The Company's goal is to revive the Historic Slocan Mining camp located 138 km North of Teck's Trail Silver Lead Zinc Smelter in Southeastern British Columbia Canada.

Dale: 604-682-2928 www.klondikesilver.com

This announcement appears as a matter of record only.



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\$13,000,000

*The Undersigned Acted as Financial Advisor to Augustine Ventures Inc.
in Connection with this Transaction.*

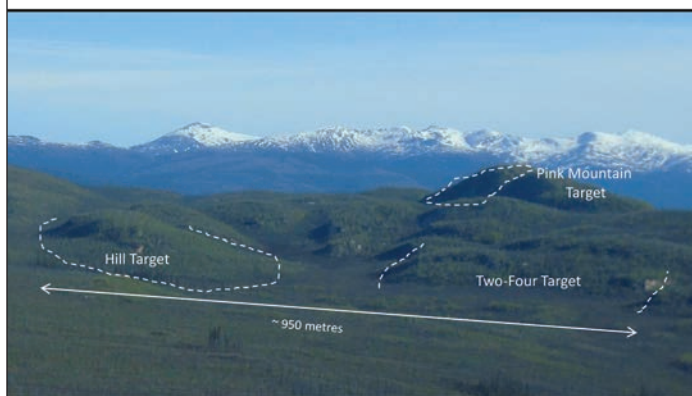
IBK Capital Corp.

February 2017

For complete transaction details, visit www.ibkcapital.com



Drilling McConnell's Jest Project Intrusion Related Gold System



Zonte Metals Inc. is a mineral exploration company with an attractive capital structure and solid management.

Zonte Metals is focusing on its McConnell's Jest Project in the Yukon and the Wings Point Gold Project in Newfoundland. Both are bulk tonnage gold exploration projects.

www.zontemetals.com

TSXV - ZON

450 km northwest of Windhoek, northwest Namibia.

The project has the potential to produce an average of 1,500 tonnes/year of separated rare earth oxides which would generate after tax cumulative cash flow of US \$259 million with a NPV (10%) of US \$148 million and an IRR of 42%. The PEA indicates that there is considerable potential to expand resources and recommended additional drilling be carried out to provide for an extended mine life in conjunction with a six-month prefeasibility study program.

Eagle Plains Resources Ltd. [EPL-TSXV] holds the Ice River REE/niobium prospect in the Rocky Mountain Rare Metal Belt (RMRMB) 45 km east of Golden, eastern British Columbia where a channel sample returned 2.5 metres grading 2.4% TREO at the Buttress Peak anomaly.

Critical Elements Corp. [CRE-TSX; CRECF-OTCQX; F12-FSE] reported nine rock samples collected in 2010 from the IRC Project had three of the samples returning greater than 0.20% TREO. The best sample, a zeolite altered syenite, returned 0.30% TREO and 0.52% Nb₂O₅. The claims are adjacent to the Eagle Plains Ice River ground. Critical Elements also has encouraging assays from the KIN and Trident properties, also along the RMRMB.

Canadian International Minerals Inc. [CIN-TSXV] holds the Weechida Niobium/REE property (37.3 metres of 1.43% TREO) along the RMRMB adjacent to the Spectrum Mining (private) Weechida Project that hosts 11.3 million tonnes of 2.5% TREO.

Fieldex Exploration Inc. is currently halted pending completion of a reverse takeover by **Indenenergy Inc.** The Fieldex mineral properties will be spun out into a new company that will include its 100%-owned Kipawa-Lac Sairs REE property in northwest Québec. In 2010, drill hole LS-10-19 hole returned 1.51% ZrO₂ and 62.30% HREO+Y₂O₃/TREO over 62 metres.

Steenkampskraal Holdings owns the Steenkampskraal rare earths mine in the Western Cape, South Africa which expects to have total sales value of about US \$43 million per year, a total cost of about US \$26 million per year and a gross profit around US \$17 million per year.

Mkango Resources Ltd. [MKA-TSXV; AIM] plans to start operations at its Songwe Hill Mine in Malawi within three years. By 2021, the company hopes to be producing 3,000 tonnes of rare earths per year.

Dr. David Trueman, director, said **Cascadero Copper Corp.** [CCD-TSXV] has been drilling its 100%-owned, very unique, Taron cesium property in Salta Province, Argentina. Cesium is not part of the rare earths; however, there is only one element separating it from the REEs. Assays and data from the Taron program will be used in the preparation of an NI 43-101 Preliminary Economic Analysis Report. Widely-spaced drilling and trenching show a potentially large resource of cesium. Metallurgical test work conducted by SGS Lakefield Research on two bulk samples in 2006 demonstrated amenability to inexpensive processing with ~90% cesium recoveries (patented 2016). Taron is on the rail line between Antofagasta, Chile and the City of Salt, Argentina. Cascadero has several other projects in Argentina and one in British Columbia. ■

Jaxon Minerals targets British Columbia prospects

by Jennifer S. Getsinger, PhD, PGeo

JAXON MINERALS INC. [JAX-TSXV; JXMNF-OTC] is an emerging mineral exploration company starting within known prospective target areas. Its two main projects are located in northwestern BC, the Hazelton (Price Creek) property in the Skeena Arch and the Wishbone property in the Golden Triangle. Jaxon Minerals has arranged agreements to attain 100% interest in these prospective projects, both in areas rich with past producers and current exploration plays. Both areas contain significant grades in precious and base metals, and need new geological models for establishing the scope and scale of the projects in order to advance toward mine planning.

There are so many attractive properties in BC, according to Jason Cubitt, President and CEO of Jaxon Minerals in a recent interview, that “it’s like shopping at Costco,” he said. The Skeena Arch has seen mineral exploration activity for more than a century.

Historic showings on the Hazelton property, a 28,000-hectare concession 55 km north of Smithers, include the Knoll and Max, related to a rhyolite dome. The geological setting is believed to be similar to Eskay Creek and Equity Silver style, with a shallow marine volcanogenic massive sulphide with an epithermal overprint, hosting silver, zinc, lead, and gold.

Previous exploration on the Price Creek property (now the Hazelton Project) yielded values up to 3,397 g/t silver, 12.7 g/t gold, 28.4% zinc, and 49.4% lead.

The Hazelton property, located 40 km north of Smithers, BC, showing a typical hillside scarp slope where volcanic and sedimentary rocks host bedded volcanic massive sulphides (lead-zinc) plus silver and gold mineralization. Photo courtesy Jaxon Minerals Inc.

Jaxon recently acquired the property and is busy with follow-up geological interpretation including structural mapping and evaluation of geophysical studies, in particular a VTEM/Mag airborne survey. An IP geophysical survey is also planned. This season’s goal is to define drilling targets and establish enough continuity to envision a geological model for the mineralization.

Farther north is the Wishbone/Foremore property, located 30 km southeast of Teck’s Schaft Creek Project, near the Galore Creek (NovaGold/Teck) copper-gold-silver project. The Wishbone property itself is 11 km long and hosts series of intermittently exposed mineralized veins in a geological setting of rhyolitic volcanogenic massive sulphides crosscut by epithermal to mesothermal quartz and quartz-carbonate veins. So far, exploration work has concentrated on surficial channel sampling and examination of new ground revealed by glacial melt. Detailed reassessment of previous work and reconnaissance mapping and sampling are included in the 2017 work program. Consistent channel sampling has yielded averages such as 7.8 g/t gold over a width of 2.4 metres along a strike length of 78 metres. Other outcrops have yielded up to 6.7 kg/t silver and 8.2% copper.

In spring 2017, Jaxon added the adja-

cent Foremore property, extending the mineral tenure to almost 20,000 hectares. The Foremore claims are only 45 km north of Barrick’s Eskay Creek. Previous explorer Roca Mines, which spent \$10 million over 15 years, reported an outcrop sample from the Foremore property that yielded a narrow vein with visible coarse gold assaying 3,240.9 g/t gold and 82,514 g/t silver. In 2004, a drill hole in the BRT showing was reported by Roca to average, over 3.1 metres, 14.6 g/t gold, 1,114 g/t silver, 0.2% copper, 1.2% lead, and 6.6% zinc.

It is the intention of Jaxon Minerals to rediscover such outcrops and find more in the newly revealed ground where glaciers had previously covered the ground, and extend the target areas of interest for further exploration.

With CEO Jason Cubitt, the company is putting together a team with extensive expertise in the exploration and mining business, including Bruce Ballantyne (geochemist and Project Manager), John King Burns (Chairman and Lead Director), Oleg Scherbina CPA, James Lavigne (PGeo, MSC), Laurence Stephenson (PGeo, MBA), Emma Fairhurst, and Garry Stock CFA. Cubitt said new additions would be coming to the team soon, “building a brain trust in assembling the big data we’ve inherited.” ■





Pershing Gold ready to reopen Relief Canyon Mine

by Kathrine Moore

PERSHING GOLD CORP. [PGLC-TSX, NASDAQ] has completed the preliminary feasibility work required to bring the Relief Canyon Mine back into production. Pershing has in hand a positive preliminary feasibility study as of June 5th, and all the necessary permits required to commence operations at the open pit, heap leach, gold mine in Pershing County, Nevada. The Relief Canyon Mine is situated at the southern edge of the Pershing gold and silver trend along the Humboldt Range.

Jack Perkins, Vice President, Investor Relations for Pershing Gold, said there are a few things to take care of like moving the crusher and improving roads but much construction has been completed; the heap leach pads are 25% built out. He told *Resource World*, "Right now, what we are looking at is more of a sequence of events. The PFS, which we put out on June

5th, is in front of our board of directors for review. They have the task of making that production decision. If they do that, it will be from six to nine months to production – to be cautious, we believe 12 months is quite reasonable.

The board is currently evaluating financing opportunities to implement the PFS recommendations."

The PFS came out with estimated initial CAPEX of about \$24 million and as per Pershing Gold's last financials they had no debt and just shy of \$7 million in the bank. Perkins said, "We are looking at a pretty small number here to get this project over the line. So we are looking at debt, royalties, gold off-take agreements and gold loans as well as strategic investments." He said because the number is relatively low, "I think you are going to likely see some combination of those. That is a key piece we need before that announcement can be

made by the board."

The NPV, IRR and Net Cash Flow assume pre-tax economics using US \$1,250 per ounce of gold, US \$16.75/oz of silver and a 5% discount rate. The company also reported upgraded mineral resource that includes NI 43-101 proven and probable reserves of approximately 635,000 ounces of gold and 1.6 million ounces of silver.

Highlights from the PFS include:

- Life of Mine 5.6 years
- Gold Production: 93,900 ounces
- Cash cost: \$770 per ounce
- AISC: \$802 per ounce
- Initial CAPEX: \$23.6 million
- Sustaining CAPEX: \$22.8 million
- Working Capital: \$11.0 million
- Pre-tax NPV, 5%: \$145 million, After-tax NPV, 5%: \$126 million
- Pre-tax IRR: 89%, After-tax IRR: 85%
- Pre-tax Net Cash Flow: \$192.7 million, After-tax Net Cash Flow: \$167.7 million

The PFS anticipates that Relief Canyon's three open-pit mines (North, South, and Light Bulb) would be mined as one pit. Perkins points out that, "We've got a 25,000-acre land package and we are drilling in the Pershing Pass area, south of the existing pits. We are drilling 3,200 feet with six holes in that area. This is exploration drilling. It is about six miles south of the existing pit, in the Black Jack area, so any satellite discoveries could potentially come into a near term production profile at Relief Canyon."

In June, Pershing Gold announced that it entered into a Mining Sublease with Newmont USA Ltd. for the Black Jack property further consolidating the Antelope Springs mining district in the Pershing Pass area south of the Relief Canyon Mine. Under the terms of the Sublease, Pershing Gold has the exclusive right to prospect, explore for, develop, and mine minerals on these areas. The Sublease has an initial term of 10 years and may be extended by Pershing Gold.

Stephen Alfors, Chairman, CEO, and President of Pershing Gold said, "We are hopeful that the drilling at Blackjack will result in the discovery of satellite deposits on our 25,000 acre land position, which could extend the life of the entire project."

"The thing that everyone should keep in mind," concluded Perkins, "is that we have a project here that we have derisked significantly over the last few years; the PFS coming out is another significant derisking factor. We believe Relief Canyon may have the lowest initial CAPEX of any project of relative size in its peer group with very robust economics. We are just very excited to move this project forward as quickly as we can and we are looking forward to doing just that."

Pershing Gold has 28,402,389 common shares outstanding, 2,725,092 shares of series E convertible preferred stock, 2,497,763 warrants, 1,035,337 restricted stock units and 1,794,453 stock options with a market cap of ~US \$80 million. ■

Voyageur Minerals plans near term barite production

Calgary-based **Voyageur Minerals Ltd.** [VM-TSXX] is gearing up for mining and producing a saleable barite rock product from its 100%-owned Frances Creek quarry south of Golden and 55 km from Radium Hot Springs, eastern British Columbia.

The company has three barite properties in the area with resources totaling about 1.6 million tonnes. The other two are Pedly Mountain and Jubilee Mountain.

In an interview, Steven Livingston, VP Finance, told *Resource World* that talks are underway for an off-take client in the oil & gas industry to purchase 1,000 to 2,000 tonnes of barite (95%-99% BaSO₄ – barium sulphate) per month. Voyageur would bring a portable crusher to the road-accessible quarry site and crush the barite to under one-inch in size. The customer would pick up the crushed rock at the quarry.

Livingston explained that dolomite is the waste rock which, in the past, Voyageur has sold for road construction which will continue. Drilling permits have been approved and production permits have been submitted and Voyageur is awaiting approval for 10,000 tonnes.

First Nations relationships are on track. Voyageur expects that after about three years of quarrying, the next step would be to begin underground mining operations.

There is strong demand in North America for barite as currently most of it is shipped from China and India. In Canada, some 90% of barite is imported and 80% is imported in the US. Barite is used by the oil & gas industry during drilling to control pressure, prevent cave-ins and prevent the uncontrolled release of oil and gas. Barite is also used as filler in paints, plastics and paper, brake pads for vehicles, rubber and carpet underlay, copper smelting, pharmaceuticals and paper production. Barite (specific gravity 4.1) currently sells for about CDN \$450/tonne in central Alberta.

Voyageur Minerals has farmed out its Paradox Basin lithium prospect in south-east Utah to Australian company **Anson Resources Ltd.** [ANS-ASX] which can earn an initial 70% interest in the 2,290-hectare Paradox lithium brine project. Anson can earn a 10% interest by paying \$75,000 (paid), 40% by defining the location(s) for one or more drill holes, issuing a NI 43-101 technical report, and spending US \$666,000 and 70% by drilling one or more holes, issuing an updated NI 43-101 technical report, and spending US \$2,330,000. Anson can earn a 70% interest in the project post-feasibility.

Work is under way on the project where the nearest town is Moab. Anson has conducted a testing program using synthetically prepared brine with a composition that matches samples from Clastic Zone 31 located 800 metres south of the project.

The objective of the testing was to determine the best method of eliminating the undesirable magnesium present in the lithium brine. The Clastic Zone 31, which has yielded assays of 1,700 ppm lithium, is subterranean pressurized brine approximately 6,000-7,000 feet below surface. There are additional 20 untested Clastic Zones possibly containing lithium brines.

Voyageur also holds the Lithium King brine project in the Bonneville Salt Flats, Utah. John Rucci, President and CEO of Voyageur, has been directly involved with bringing two gold projects from discovery to production. ■

Glen Eagle Resources — gold and industrial minerals an attractive asset mix

by David Duval

GLEN EAGLE RESOURCES [GER-TSXV] is one of only a few junior mining companies with interests in two asset classes namely gold and phosphate – an arguably unconventional asset mix for a TSX-listed company.

On the gold side, the company has largely segregated itself from the pack of junior explorers on the TSX by acquiring custom milling capacity with strong upside potential in the Central American country of Honduras where a decade-old free trade agreement with the US is helping foster foreign direct investment. The acquisition of its gold plant in Choluteca involved the purchase of a 100% interest in Cobra Oro de Honduras S.A. whose processing facility provides custom milling services to several small producers in the region including two registered small scale mining cooperatives.

In May 2017, Glen Eagle announced the acquisition of the La Cobra concession near the Pan-American Highway approximately 45 minutes from its milling facility. La Cobra was the largest operational underground mine in Honduras for the greater part of the last century. Preliminary sampling has returned high-grade gold values from the mine and a NI 43-101 compliant geological report is being prepared.

Cobra Oro has been producing gold on a commercial basis since April 2017 following a significant plant expansion that will likely not be the last. According to Glen Eagle, the project was completed while covering its on-site capital expenses from existing cash flows. The program included the relocation of both the entire crushing system and electrical power grid infrastructure. The peak in construction was reached with the installation of a cone crusher as an add-on component to the actual crushing circuit.

A new ball mill is set to arrive on site in July which will complete the last and third expansion phase as no further development work is planned for remainder of 2017. The ball mill is set to process 120 tonnes per day.

During April-May, Cobra Oro sold approximately \$300,000 in gold doré bars despite the intense on-going work in the gold processing plant. “Mid-June 2017 will be remembered as a turning point for Glen Eagle,” said CEO Jean Labrecque. “This turning point will be marked by two fundamental changes: the acquisition of La Cobra (one of the most sought after mining concessions in Honduras) and a profitable operation propelled by our latest plant expansion.”

Cobra Oro’s gold processing plant is located in an area known for its work force and safe environment. The plant operates in a free zone adjacent to the Chamber of Commerce building, Pepsi’s bottling plant and the Pan American Highway.



The Glen Eagle gold processing plant in Choluteca, Honduras. Photo courtesy Glen Eagle Resources Inc.

Mining is hardly new to Honduras which is best known for its El Mochito Mine where production began in 1948 and has continued for almost 70 years. Toronto-listed Ascendant Resources is currently optimizing production at the El Mochito zinc-lead-silver mine.

Glen Eagle notes that no mining concessions have ever been confiscated in the country’s entire history and a new mining law brought into force in 2016 has further advanced protection for mining investments in the country.

In terms of market recognition, phosphate remains somewhat of an outlier in the commodities space even though the global phosphate market was valued at approximately \$67.3 billion in 2015 and is projected to reach \$75.2 billion by 2021. Interestingly, that lack of market recognition might work in the company’s favour given the dearth of investment opportunities in this particular market sector – not to mention fewer competitors.

In February 2015, the company announced the results of a very successful drilling program on its Moose Lake phosphate project located near Highway 172 approximately 100 km north of Chicoutimi, Québec. A total of 3,300 metres was drilled under a program designed to deepen 11 holes drilled previously in 2012 that did not cross at depth the entire phosphate-bearing unit.

The latest drill program successfully increased the phosphate intercepts at depth in every hole, confirming the main phosphate-bearing deposit with a greater degree of certainty. With its Honduran gold project now a priority, Glen Eagle at last report, was planning to make a modest expenditure of \$50,000 in 2017 on its Moose Lake property.

On July 10, 2016, Glen Eagle signed a binding agreement for the sale of its Authier Lithium project near Val d’Or, Québec for a consideration of \$3,925,000, thereby recording a profit on the sale of \$1,694,583. The funds were allocated to increasing gold production at Cobra Oro which the company proposes to do on an incremental basis. ■

Prize Mining exploring Daylight and Toughnut prospects

by Ellsworth Dickson

PRIZE MINING CORP. [PRZ-TSXV; MQSP-FSE, XETRA] reports that Phase 1 fieldwork is now underway at the Daylight and neighboring Toughnut gold properties, located near Nelson, British Columbia. The company recently optioned a 100% interest, subject to a 2% NSR, in the Toughnut property. The property is contiguous to the west side of Prize's Daylight property. Under the Toughnut option terms, Prize must pay \$150,000, issue 250,000 shares, and spend \$750,000 on exploration over five years. Collectively, the 1,550-hectare Daylight and the 1,010-hectare Toughnut properties strategically cover a five-km strike-length of the central and eastern segments of the >1 km wide Silver King shear system.

The Daylight property is part of the 80%-optioned Kena-Daylight Project with the Kena property hosting six past-producing gold and copper mines with four past-producing mines over a 3.5-km trend with grades as high as 37 g/t gold. These include the Starlight, Victoria, Daylight and Great Eastern mines.

The Kena property has three prospective gold and copper-gold zones: 1) the bulk tonnage porphyry gold deposits which host the KGM gold deposit with high-grade zones; 2) high-grade gold veins characterized by the four historic mines in the Daylight gold area; and 3) the bulk tonnage porphyry copper-gold mineralization characterized by the Copper King Zone.

The KGM Zone on the Kena ground contains a porphyry deposit with NI 43-101 compliant indicated resources totaling 24,890,000 tonnes averaging 0.60 g/t gold, for 481,000 ounces of gold. Inferred resources stand at 85,790,000 tonnes, for 1,318,000 ounces of gold. Company geologists are of the view that these resources can be expanded with additional drilling. These gold resources are amenable to leaching.

Feisal Somji, President and CEO, said, "This is a strategic acquisition for Prize Mining as we now control what we believe to be the most significant part of the mineralized Silver King shear zone. This parcel of land will play an important role in this summer's exploration program as we prepare to drill this fall."

The Toughnut showing features old pits, shafts and trenches where 1989 grab samples returned 6.64 g/t, 8.65 g/t, and 32.8 g/t gold with associated silver ranging between 33 and 175 g/t Ag. Drilling in 2010 returned 6.9 g/t gold and 143 g/t silver over 2.0 metres and 4.05 g/t gold over 8.0 metres. The Gold Eagle showing, located 500 metres north of the Toughnut showing, was drilled by US Borax in 1988 which reported 90 g/t gold over 1.53 metres. In 2010 Valterra Resources also drilled the property with its best results returning 4.02 g/t gold and 9.52 g/t silver over 24.33 metres, including 4.0 metres grading 14.47 g/t gold and 3.46 g/t



Connor Malek, Project Geologist from Terralogics, takes a mineral sample on a new forest service road at the border between the Black Witch area and the eastern Toughnut ground. Photo courtesy Prize Mining Corp.

silver. The zone has been tested to 73 metres in depth and remains open and along strike and down dip.

Sampling is underway on the consolidated land package with about \$1 million budgeted for exploration this year. Other work includes geophysics, trenching with drilling expected to start in September or October, pending receipt of permits.

The objective of the Phase-I field program is to refine the locations and geochemical/geophysical signatures of known historical workings on the properties. Prize will use this information to spearhead upcoming Phase II trenching and Phase III drilling programs later in 2017.

The company is well financed having completed a \$6 million private placement in April. The business strategy of Prize Mining is to achieve near term production of over 50,000 ounces of gold per year at an all-in cost of less than \$800/oz by isolating high-grade material. The Teck Resources Trail smelter is 45 minutes' drive south. Prize Mining geologists have determined that there is potential for higher grade porphyry targets of over 1 g/t gold within the ~2 million ounce resource. The company's properties are near rail and power.

Prize Mining is headed by Feisal Somji, BSc, MBA, CEO, who has over 20 years' experience from grassroots exploration to mine development, corporate finance and governance. Most recently, he was founding President and CEO of Rio Alto Mining which was acquired by Tahoe Resources in 2015 for \$1.3 billion. The company has approximately 58.7 million shares outstanding.

Several new forest service roads have been identified that provide new prospective cross-cut exposures over the main mineralized trends at both Daylight and Toughnut properties. At the Daylight, one such road replaces at least two proposed cat trenches from the upcoming Phase-II program. New road cuts will be mapped and chip sampled during Phase I. ■

Ontario's Wawa mining district update

by Kathrine Moore



Olga Prikhodko, Red Pine geologist, logs diamond drill core at Wawa Gold Project located 2 km southeast of Wawa, northern Ontario. Photo courtesy Red Pine Exploration Inc.

Wawa has a rich mining history that goes back hundreds of years with the mining of copper in the area. But it was gold that brought many hopeful prospectors to Ontario in 1879 when it was discovered on the south shore of Wawa Lake. The resulting gold rush lasted for just under a decade and brought about the incorporation of the City of Wawa. Smaller communities that grew up near new gold mines have however, come and gone.

The flurry of gold exploration activity in the area led to the discovery of iron and the resulting Helen Mine was the largest Canadian producer of iron ore from 1900 to 1918. In 1920, new gold veins were discovered at Michipicoten on the south-eastern shores of Lake Superior a just a few miles from the initial gold discovery at Wawa Lake.

Canada's Abitibi greenstone belt, which begins in Wawa and stretches east for 650 miles to Val d'Or, Quebec hosts several of the world's largest gold and base metal deposits. Today, several gold companies continue to explore and produce in the Wawa Mining District.

Argo Gold Inc. [ARQ-CSE] has five 100%-owned properties on highly prospective ground in the Wawa area: Rockstar, Abbie Lake, South Wawa, Mishi

Lake and Macassa Creek. Argo Gold is working at the properties on re-establishing access, grab and channel sampling, geological and structural mapping, geochemical surveying, prospecting.

Initial samples were sent for assay in mid-May, and results are pending. The company is reviewing historical geological and geophysical data, as well as planning follow-up drilling.

Argo Gold describes all properties as "having high-grade underground and low-grade open pit potential – particularly given their proximity to two gold mills." Some properties have undergone exploration drilling though some results are unverified.

The Rockstar gold project has two significant gold prospects that merit follow up. At the Abbie Lake gold property gold mineralization was identified by Tundra Gold Mines over strike length of ~ 5 km. The Macassa Creek property did see some exploration drilling in the late 80s. Future plans include identifying drilling targets based on future fieldwork and geological interpretation.

The South Wawa property is in the historic mining camp south of Wawa. Historical soil sampling identified gold and pathfinder element anomalies near the Valentti Vein that have not been explored.

The property was subject to trenching program but has not been explored since the early 1990s.

The Mishi Lake Gold property is a recent acquisition where Argo Gold staked two adjacent claims. The entire land package is adjacent and east of several historical gold prospects.

Argonaut Gold Inc. [TSX-AR] is an experienced gold producer with two gold mines currently in production in Mexico. Argonaut has the advanced exploration Magino Project (100% owned), a past producing, underground gold mine 40 km northeast of Wawa.

The project was the subject of a positive 2016 Pre-Feasibility NI 43-101 Technical Report dated February 22, 2016 that outlined an open-pit mining operation with the potential for deeper, higher-grade gold production with a mine life of 10 years, cash costs of \$582/oz gold, an after-tax NPV at \$1,200 gold and a 5% discount rate – \$415M, an after-tax IRR of 23% and an initial capital cost of \$540 million (US\$). The company is planning to complete a feasibility study on the project H2 2017.

The Magino project has NI 43-101 (December 2016) compliant proven and probable reserves of 3 million gold oz (105 M tonnes at 0.89 g/t) and indicated 4.1

million gold oz, inclusive of reserves (144 M tonnes at 0.88 g/t).

On January 11, 2017, Argonaut Gold announced final assay results for the last 123 reverse-circulation (RC) holes of a 350-hole program at the Magino Project designed to reclassify mineral reserves from probable to proven within the proposed starter pit at Magino. Tom Burkhart, Vice President of Exploration stated, "Drill results support the current block model and the interpreted geometry of mineralization."

These drill results, including those that were released December 5, 2016 will be incorporated into a feasibility study, which is expected to be completed during the second half of 2017.

Harte Gold Corp. [HRT-TSX; HRTFF-OTC H40-FSE] is developing their 100%-owned Sugar Zone property 60 km east of the Hemlo Gold Camp. The property holds an NI 43-101 compliant indicated resource of 1,117,000 tonnes grading 8.41 g/t gold for 302,000 ounces of contained gold and an inferred resource of 417,000 tonnes grading 7.13 g/t gold for 95,000 ounces of contained gold.

In January, Harte Gold received a Phase I Commercial permit, allowing continued mining at the Sugar Zone Deposit of 30,000 additional tonnes and further underground development in preparation for full scale commercial operations expected to begin Q1 2018.

Currently, six drills are on site conducting a 75,00-metre program. As well, Harte Gold is conducting airborne geophysical surveying (MAG, HTEM, IP), geochemical and field mapping and grab sampling. A recent property-wide airborne magnetometer survey has identified four new exploration regions.

Harte Gold reported on July 5, 2017 that it had completed a bought deal private placement financing raising \$25,000,570 for the development of the Sugar Zone property, for regional exploration, and for general corporate purposes.

McDonald Mines Exploration Ltd.

[BMK-TSXV] announced on June 12, 2017, the completion the purchase of all of Noble Mineral Exploration Inc.'s interest in the Holdsworth exploration property 25 km northeast of Wawa (1.5% net smelter royalty to Noble Mineral Exploration). The property has been explored by MacDonald Mines since late 2016 under an option and JV Agreement (now void) between Noble and MacDonald.

One of the company's main gold targets on the Holdsworth property are the Oxide Sands where gold mineralization occurs in black sands composed of "fine quartz, non-magnetic iron oxides (likely oxidized pyrite) and free gold". Because the material can be easily accessed and excavated with a backhoe, (shallow overburden) mining costs will be minimal should the deposit be large enough.

McDonald Mines shipped 100 kg of oxide sands to SGS Minerals to "conduct metallurgical testing and investigate potential simple processing methods to concentrate the gold and silver from the Oxide Sands and achieve the highest possible recovery."

In May the company announced results for its initial sampling program; highlights include: an initial average grade of 2.95 g/t gold for sample A and 5.45 g/t gold for sample BE.

Exploration plans for this year include core sampling, trenching, field sampling and an airborne geophysical survey.

On July 6, McDonald Mines announced that it had begun excavating the Oxide Sands on the Holdsworth property. The company is conducting an expanded trenching program to expose and sample the sands along strike and a sonic drill will test their depth limits.

Red Pine Exploration Inc. [RPX-TSXV] has a 60% interest in their recently acquired Wawa gold project; with Citabar LLP holding the remaining 40%; Red Pine is the project operator. Though, numerous historic gold mines produced over 120,000 gold oz on the property and over 87,000 metres have been drilled there, these mines were never geologically connected.

The company states that, "To date, the

largest gold deposit on the property is the Surluga Deposit." The Surluga Deposit hosts a NI 43-101 inferred resource of 1,088,000 ounces of gold at 1.71 g/t using a 0.50 g/t gold cut-off grade, contained in 19.82 million tonnes open along strike and at depth.

Red Pine's work towards developing a comprehensive understanding of the property's geology is uncovering new targets. This spring the company began a 10,000-metre diamond drill program following-up on a "promising intersection of the former Minto Mine structure near the former Parkhill Mine to infill the 1 km strike between the historic mines. The company reported in May that visible gold was observed in all seven holes drilled in the southern extension of the Minto Mine shear zone.

On June 21, 2017, Red Pine announced partial results for holes SD-17-75 to SD-17-78 demonstrating that the high-grade mineralization of the historic Minto Mine extends to the south.

Other exploration work by Red Pine includes sampling of 42,000 metres of historic core and the completion in March 2017 of a 6,000-metre drill program.

Richmont Mines Inc. [RIC-TSX, NYSE] has the (100%-owned) producing, underground, Island gold mine 83 km NE of Wawa. On May 29, 2017, Richmont Mines announced that results from an Expansion Case Preliminary Economic Assessment confirm the increase in mine and mill productivity to 1,100 tpd (latter 2018 target) will support production growth of 22% at low industry cash costs and a robust cash flow stream over the eight-year Phase 1 period, with low incremental capital of \$28.2 (US \$20.9) million required.

The company expects that the mine will produce, on average, 125,000 oz per year, excluding the 2017 and 2018 ramp-up period, or 115,000 ounces over an 8-year period. Additional opportunities remain for further expansion scenarios and mine life extension.

RT Minerals Corp. [RTM-TSXV] has three properties in the Wawa area: Ballard Lake diamond and gold property (100%



- Existing >1M oz. inferred gold resource with expansion potential
- 4 additional gold discoveries on property
- On-going 20,000m drill program
- Significant growth potential
- Interest from several Majors

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owned, 2% net smelter royalty) 50 km northeast of Wawa; Norwalk gold property (100% owned, 2% net smelter royalty) ~6 km south of Wawa, Ontario; and the Dill River gold property several km southeast of Wawa in which RT Minerals has an option to earn a 100% interest, subject to a 2% net smelter royalty.

In May RT Minerals filed technical reports for the Ballard and Norwalk properties. On November 22, 2016, RT Minerals reported on surface grab sampling at the Norwalk property and further drilling plans of five holes, up to 200 metres each on historical gold showings.

RT Minerals Corp. recently entered into a purchase and sale agreement to acquire a 100% interest, subject to a 2% net smelter royalty, in the Dog Lake gold property ~ 59 km northeast of Wawa consisting of 75 units in 9 claims for a total area of approximately 1,112 hectares (subject to exchange approval).

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Wesdome Gold Mines Ltd. [WDO-TSX] has the Eagle River Complex 50 km west of Wawa where the company is producing gold from two mines, the Eagle River Underground Mine and the Mishi Open pit.

Ore from both mines is processed at facilities adjacent to the Mishi open pit permitted at 1,200 tonnes per day with plans to expand to 1,500 tonnes per day. Currently exploration drilling is underway to potentially double the mine life at both operations.

Since commercial production was declared January 1, 1996, the Eagle River underground mine has produced more than 1,000,000 ounces of gold from 3.6 million tonnes at an average recovered grade of 9.1 g/t gold. The mine is currently operating at ~500 tonnes per day.

At the Mishi open pit production is ~ 400 tonnes per day. The company improved milling operations and Wesdome plans to expand operations at the open pit to 900 tonnes per day over the next couple of years. Surface drilling has increased the mineralized system which is completely open to the west and at depth. ■

Osisko Metals leads staking rush in prolific Bathurst Mining Camp

In addition to the greenfield projects in Québec, **Osisko Metals Inc.** [OM-TSXV] has consolidated a large land package encompassing over 40,000 hectares in the Bathurst Mining Camp (BMC) of New Brunswick, Canada.

The company's management team is convinced that there has been a lack of exploration work for smaller deposits of 3 to 15 million tonnes in the BMC and that these smaller deposits, along with the tightening of the global zinc supply to the market, have created a singular opportunity. Key claims became available and Osisko Metals seized the opportunity and began a staking rush in January to become the first junior to hold such a large land holding in the BMC.

In March, Osisko Metals signed a formal purchase agreement to acquire 100% of the Brunswick Belt Project, a strategic zinc property located roughly 25 km southwest of City of Bathurst. The project area covers portions of the Brunswick Belt Horizon that hosted both the former Brunswick No.12 and No.6 mines, known for hosting the most prolific geology in the BMC. The Brunswick No.12 Mine produced 137 million tonnes of ore grading 8.74% zinc, 3.44% lead, 0.37% copper, and 102 g/t silver, between 1964 and 2013.

Historically, a significant amount of previous exploration work

was performed by Brunswick Mining and Smelting, Noranda, Xstrata and, most recently, Glencore with their partner Votorantim. When Brunswick Mines was in production, the objective was to find additional mill feed for the Brunswick No.12 concentrator that produced at a rate of 10,500 tonnes per day or approximately 3.5 million tonnes per year. Osisko Metals is of the view that the BMC warrants further exploration for smaller scale deposits that could be processed at a centrally located concentrator.

Within the BMC, the company recently signed an option agreement to acquire a 100% interest in the Mount Fronsac Project, a prospective property that hosts a historical, non-NI 43-101-compliant, unclassified resource of 1.26 million tonnes grading 7.7% zinc and 2.2% lead. In April, the company acquired a 100% interest in claims in the Gilmour South, Louvicourt, FAB, and Flat Landing Brook areas that cover portions of the historical deposits.

Osisko Metals' short term objective is to validate and further define historical high-grade deposits and convert them to NI 43-101 compliant mineral resource estimates. Osisko Metals' management team is of the view that with an innovative approach and using the extensive public historical data sets, the company is in a good position to unlock the district's potential for this multi-deposit concept.

New Brunswick is recognized as being mining-friendly and the Bathurst Mining Camp has all the necessary infrastructure for mine development and production. ■

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Newrange expands Pamlico high-grade mineralization

by Thomas Schuster

NEWRANGE GOLD CORP. [NRG-TSXV; CMBPF-OTC; X6C-FSE] recently tabled some eyebrow-raising drill results from its Pamlico gold project in Nevada. These latest drill results continue to define and expand gold mineralization around the two key target areas known as the Merritt Zone and Merritt Decline.

The Pamlico Project is just 12 miles southeast of Hawthorne along US Highway 95. The project covers the historic Pamlico group of mines, as well as the nearby Good Hope, Central, Gold Bar and Sunset historic mines. This group of mines was originally discovered in 1884 and became a prolific gold producing district.

The mines were held by private interest for most of their history and, as a result, remain under explored in terms of modern exploration. There is no documented geophysical or soil geochemical surveys and only 103 drill holes totaling 27,838 feet (8,487 metres) scattered across the 1,200-hectare property.

Newrange acquired an option to acquire a 100% interest in the property in 2016 when the previous owner's failing health forced the sale of the project. The option deal is worth US \$7.5 million in cash payments with a minimum of US \$250,000 payments per year. This can be reduced to US \$4 million in cash if the option is exercised and paid within four years. The deal is subject to a 4% NSR (3% of which can be purchased for a total of US \$3 million at any point).

In 2013, the seller permitted and constructed a modern, trackless, 188-metre-long, decline for test mining of high-grade mineralization they had previously identified by drilling. However, the decline was never systematically sampled. Newrange sampled the decline and identified multiple high-grade structures assaying from 28.90 g/t gold over 1.5

metres to 104.75 g/t gold over 1.5 metres within an extensive zone of disseminated mineralization averaging 2.92 g/t gold over 75.5 metres in the decline.

As a result, the exploration target changed from a strictly narrow high-grade gold vein system to a large disseminated gold system cut by numerous high-grade veins. Newrange began a Phase I drilling campaign at Pamlico in May this year and results have, so far, been very positive. Mineralization has been identified between the Merritt decline and the high-grade intercepts from drilling in Merritt Zone by previous operators. This would indicate a mineralized zone approximately 100 to 130 metres wide that is open ended along strike.

Highlights from the most recent drill results include;

- **Hole P17-17** intersected an 0.8-metre interval assaying 244.3 g/t gold. This is the company's second highest grade drill intercept to date, and is included within a broader interval of 4.6 metres averaging 43.8 g/t gold starting from just 8.4 metres down-hole.
- **Hole P17-12** also intersected high-grade shallow mineralization and extended the known limits of mineralization more than 35 metres west of previous drilling. It cut 4.6 metres averaging 14.5 g/t gold within a broader interval of 13.7 metres averaging 6.0 g/t gold. This intercept is at an approximate vertical depth of 40 metres from the surface (58 metres down-hole).
- **Hole P17-18** intersected 2.3 metres averaging 58.5 g/t gold within a 9.9-metre interval averaging 15.27 g/t gold starting 54.1 metres down-hole.
- **Holes P17-13, 14 and 15** all contain significant intercepts of disseminated, lower grade mineralization, confirming and expanding the extent of "halo" gold min-

eralization more than 30 metres south of the decline.

Notably, this recent drilling intersected high-grade, oxide mineralization above the Merritt Zone, expanding the zone's shallow potential. This potential was previously overlooked because historic drilling was not assayed from the surface to a depth of 55 metres.

"These results indicate that Pamlico is a unique, high-potential opportunity for Newrange Gold," said Robert Carrington, President and CEO. "The extremely rich Merritt Zone, where we are focusing our initial exploration efforts right now, is one of five similar target areas, covering only 1/2 of 1% of this property and less than 1/10 of 1% of the combined strike extent of the more than 300 known veins and mineralized structures on the property. The knowledge gained in this area will guide future exploration for several similar target areas elsewhere on the property including the Gold Box, Central and Sunset Mine Zones."

With these results in hand, Newrange recently staked an additional 111 claims (adding 982 hectares to its land position), increasing it by 75% to 2,165 hectares. The company states that it now controls the dominant gold trends in the area.

The company is now completing detailed down-hole surveys and structural analyses of the completed drill holes utilizing the OBI Down Hole Televier. This state-of-the-art, high resolution, down-hole imagery provides detailed, oriented, structural data from Reverse Circulation holes equal to or better than that from oriented core.

Newrange Gold has 64.4 million shares outstanding and a market capitalization of about \$34 million. The company raised \$1.5 million in April. ■

Silver Bull to drill former Mexican zinc producer

by Ellsworth Dickson

SILVER BULL RESOURCES INC. [SVB-TSX; SVBL-OTCQB] plans to begin a drilling program shortly, on its 100%-owned Sierra Mojada property 150 km north of Torreon, Coahuila State, north-east Mexico. The property is a past producer of zinc and silver, but also hosts significant quantities of lead and copper. The Sierra Mojada district was discovered in 1879 and high-grade ores were intermittently mined underground via three shafts until 1990. Of note, miners targeted high-grade (+25% zinc and +500g/t silver) and silver and zinc that was direct-shipped to smelters. There was no mill.

More recent operators have explored the extensions and halos of the previously mined mineralization. Two separate and distinct high-grade zones, one of zinc (called the Zinc Zone) and one of silver (called the Silver Zone) are contained within a larger global NI 43-101 compliant measured and indicated resource of 58.7 million tonnes grading 3.6% zinc and 50 g/t silver for 4.670 billion pounds of zinc and 90.8 million ounce of silver. All the mineralization defined to date is oxide.

The resource within the discreet, high-grade zones of the silver and zinc mineralization include: a measured and indicated resource in the Zinc Zone of 10.03 million tonnes averaging 11% zinc at a 6% cut-off for 2.426 billion pounds of zinc, and a measured and indicated resource in the Silver Zone of 19 million tonnes averaging 102.5 g/t at a 50 g/t cut-off for 62.6 million ounces of silver.

Sierra Mojada is a carbonate replacement deposit hosted in dolomite (~80%) and limestone (~20%), a style of mineralization that is common in Northern Mexico and accounts for approximately 40% of Mexico's past silver production and 70% of its past zinc and lead production. The mineralization at Sierra Mojada is seen as

a continuous manto (blanket-shaped) ore body with an approximate strike length of 3.5 km, up to 200 metres wide and up to 60 metres thick that dips shallowly east and remains open.

Over the past 18 years, over US \$50 million has been spent by other operators on exploration and development.

The upcoming 5,000-metre drill program is budgeted at US \$700,000 with the objective of targeting sulphide feeder zones. Unlike many underground mines, most of the Sierra Mojada workings are dry, enabling geological mapping and underground drilling operations to proceed.

Metallurgical studies have been com-

pleted with favourable metal recoveries for both the high-grade silver (leaching) and the high-grade zinc (Waelz Kiln). The 200 km² property is accessible by paved road, the company owns five water wells and there is a natural gas line nearby as well as a railway. Employees can live in local towns in this historic mining region.

Silver Bull Resources, headed by Tim Barry, President and CEO, has about 193 million shares outstanding. ■

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Fiji looking golden for Lion One Metals

by Jennifer S. Getsinger, PhD, PGeo

LION ONE METALS LTD. [LIO-TSXV; LOMLF-OTCQX] holds Fiji's Tuvatu gold project, one of the highest-grade gold mining prospects in the world. Led by North Vancouver entrepreneur Walter Berukoff (with Red Lion Management and real estate interests, including First Quay Holdings), Lion One Metals plans to mine the yellow metal in the near future. Tuvatu, located on the edge of the Navilawa caldera, lies on the same structural lineament as the Vatukoula gold mine, near Nadi International Airport on Fiji's main island of Viti Levu. A Fijian government ceremony in January 2016 marked the presentation of the mining lease permit for the go-ahead of the Tuvatu Mine, from Prime Minister Bainimarama. With a mining lease in place, the next steps for Lion One Metals include awarding contracts for construction of the processing plant and site infrastructure, and beginning to mine

and stockpile gold before 2018.

Berukoff, Chairman and CEO of Lion One Metals, has a long history of owning and operating various assets worldwide, including more than 20 gold mines in seven countries and real estate ventures in Cuba. Stories of successes have come and gone for Berukoff – resource companies founded, built up, and sold – Miramar, Northern Orion, La Mancha Resources. He values environmental concerns and has a personal interest in organic agriculture.

In 2006-2007, Berukoff acquired not only the longest operating gold mine in Fiji from Emperor Mines, but also several other properties on the main islands of Viti Levu and Vanua Levu. Around that time, a change in government resulted in leadership of Fiji's current Prime Minister, Commodore Voreqe (Frank) Bainimarama, who has been encouraging to Lion One Metals' projects.

Other people key to Lion One Metals are Stephen Mann, geologist and Managing Director, whose career included gold mining discoveries in Australia; and Ian Chang, Chief Development Officer, who was VP Project Development for Pretium's Brucejack gold project (now producing gold bars).

Gold mining has been carried out on Viti Levu at the historic (and currently operating) gold mine of Vatukoula. Vatukoula is one of the large volcanogenic, epithermal gold systems of the South Pacific segment of the Ring of Fire, along with Barrick's Porgera and Newcrest's Lihir in PNG. Since 1933, Vatukoula has produced some 7 million ounces of gold, and contains 21 million tonnes at 6 g/t gold (or from VGM website, mineral resources of 4.1 million ounces gold and mineral reserves of 750,000 ounces).

In 2006-2007, companies controlled by

Lion One CEO Walter Berukoff, left, and Lion One Managing Director Stephen Mann, centre. Photo courtesy Lion One Metals Limited.

Berukoff acquired Vatukoula from Emperor Mines and then sold it with proceeds directed to the Tuvatu Project. Fijians were eager to get the Vatakoula Mine operating again after the 2007 closure since so many people depended on its continued production for their livelihoods.

With a similar gravity signature to the Vatakoula gold mining area, the entire Navilawa Caldera is under application by Lion One Metals to expand the mineral tenement base for its Tuvatu Gold Project, in addition to a large exploration license. Even without the extra land holdings, the current resource model at Tuvatu suggests a mine life of at least seven years. Future high-grade gold production is estimated at 262,000 ounces at 15.30 g/t gold for three years, and 352,000 ounces at 11.30 g/t through year seven, based on a gold price of US \$1,200/oz. Estimates in 2012 for Tuvatu for inferred resources were 480,000 ounces of gold from 2,618,000 tonnes grading 5.71 g/t gold, and indicated resources of 172,000 ounces from 760,000 tonnes grading 7.05 g/t gold.

An advantage for mining in Fiji is that the workers from Vatukoula have years of expertise in narrow vein mining. This is crucial in places where high-grade veins might occur, such as the recent intersection in drill hole TUDDH406, which yielded 71.41 g/t gold over 8.41 metres, including 126 g/t gold over 4.5 metres. Although gold is generally evidenced in the Navilawa Intrusive Complex over a large area with at least 1.00 g/t gold, some veins are studded with visible crystalline gold. As Berukoff said in the interview, "It's a jewel box!" He said now that the Tuvatu Mine has permits in hand, it has the potential to be the "greenest gold mine yet" with its plan to mine underground and have dry stacking of tailings to preserve environmental integrity of the tropical paradise that is Fiji. Berukoff concluded, "It's a culmination for me in the past 40 years, the best project in my experience." ■

GGX Gold: past producer yielding good gold assays

Management of GGX Gold Corp. [GGX-TSXXV] is pretty excited these days as numerous high-grade gold assays just keep coming from its flagship, past-producing, Gold Drop Project located nine km northeast of the historic mining camp of Greenwood, southeast British Columbia. The property is 100% optioned from Ximen Mining Corp. [XIM-TSXXV].

Following the discovery of an anomalous quartz outcrop exposed by logging, an excavator trenching program has uncovered over 80 metres of vein on both sides of the old C.O.D. shaft where samples have returned assays that have ranged up to 19.65 g/t gold. The C.O.D. shaft, reported to be about 21 metres deep, was sunk around the year 1900 on a gold-bearing quartz vein. A 1988 diamond drill hole adjacent to the shaft was reported to intersect 7.4 g/t gold and 86.8 g/t silver over 0.75 metres (true width unknown).

The newly-discovered vein remains open at both ends and the new Clare Extension, which is immediately northeast of the C.O.D. shaft, is on strike with a recently discovered outcrop located over 680 metres distant that returned 14.1 g/t gold. GGX is continuing the excavator program on the Clare Extension and is channel sampling to test the vein every 1.5 metres. Samples have been shipped to ALS Lab for assaying.

"I am more than encouraged by the excavator trenching program on the Gold Drop which has recently exposed over 80 metres of vein adjacent to the C.O.D. shaft. As trenching progresses, and new assays from the channel sampling program are reported, I expect we will gain a much better understanding of the mineralized vein structures which are prevalent on the property," said Barry Brown, President of GGX Gold.

The program is being conducted at the Gold Drop Southwest Zone, formerly the reverted C.O.D. Crown grant, where the shaft was sampled in the early 1930s and returned a sample reported to be 0.75 oz/ton gold (23.33 g/t).

The Gold Drop property covers geologically prospective ground and hosts numerous low-sulfide, gold and silver-bearing quartz veins or vein systems, four of which were previously mined (Gold Drop, North Star, Amandy and Roderick Dhu veins). Historical production from Armandy, North Star and Gold Drop was 7,572 tonnes averaging 5.2 g/t gold and 93.4 g/t silver.

Historical expenditures on the property totaled some \$10 million (in today's dollar terms) and, more recently, Ximen spent \$1 million. Power is available on the property. GGX recently staked more claims and the land package now comprises 4,200 hectares.

To date, 200 metres of trenching have since exposed over 160 metres of the C.O.D. vein in the Gold Drop Southwest Zone. There are 15 proposed drill holes targeting the Dentonia/Jewel-style quartz vein from five drill pads at various locations along the long trench. The drill has now mobilized to the first drill pad and drilling is under way.

GGX has acquired a processing plant, equipment and related assets that include a proprietary mobile ore sampler involving a process for on-site collecting, reducing and concentrating minerals from host rock. This mobile platform enables the miner to perform bulk sample testing directly at the mine site. ■

Virtual Reality comes to mining

MOON PATROL VR LAUNCHING CUTTING EDGE VR TECHNOLOGY

by Ellsworth Dickson

PHOTOGRAPHY has a long and illustrious history since it was invented in 1827 – glass plates, colour, moving pictures, 3D – and now virtual reality. Just what is virtual reality? Virtual reality, or VR, is the interactive viewing of wide-angle, panoramic photographs and/or animated graphics and data (depicting drill holes, for example), generally encompassing a 360-degree circle or a spherical view.

However, VR is more than a photograph or animation. These depict a three-dimensional subject in two dimensions. 3D photographs add depth but are still on a flat plane. So while virtual reality consists of images and/or animation of the subject of interest, they are not on a flat plane. Instead, the user visually “enters” the image or animation and moves around inside as if he or she is actually there by using interactive software and a stereoscopic headset for viewing. This realistic interactive experience is controlled by movement of the user’s own body.

This ground breaking technology can be used for entertainment purposes as well as industrial applications, including mining. That’s where **Moon Patrol VR Inc.** comes in, a Vancouver, BC-based company headed by Dan Audet that is specializing in developing VR technology for the mining sector with partner **LNG Studios**.

The company’s objective is to provide VR images and animation of mine data that can be used for investor relations as well as for engineering and geological purposes. For example, one of Moon Patrol VR’s clients, Lucara Diamond, can “take” prospective investors to their Karowe diamond mine in Botswana. Using VR goggles, the visitor can actually walk around and even hover over the mining operation to get a much better understanding of the mining and processing procedures; this experience is called mobile VR.

What is really exciting is how the VR technology can take engineers and geologists underground and “float” through the rocks, tunnels and stopes and view drill holes, rock types as well as the size and shape of the ore deposit. Part of a geologist’s job is to visualize the geometry of a mineral deposit in three dimensions – not always an easy thing to do, especially in the early stages of exploration. VR technology presents information gathered by diamond drilling, surface mapping, underground development and visualizes the geology in three dimensions. Data from Gemcom, Surpac or Leapfrog can be incorporated into the VR experience.

In an interview, Audet said that he grew up surrounded by



Dan Audet, Managing Director of Moon Patrol VR Inc., displays HTC Vive goggles with the Richmond Mines room-scale VR demo on the computer screen (in two dimensions). Photo by Ellsworth Dickson.

mining in Val d’Or, Québec, a famous Canadian gold mining town. His father is a geological engineer and, therefore, Audet was familiar with the industry. As a graduate of the University of Victoria with a degree in Commerce, a year ago Audet struck upon the idea of commercializing and adapting VR technology to the mining sector by utilizing existing video game technology with his own technology and Moon Patrol VR was created. Under Audet’s guidance, the company, in conjunction with LNG Studios, now has about 20 employees that are developing VR technology for various mining applications.

To date, in addition to Lucara Diamond, other clients include NGex Resources, Richmond Mines and NexGen Energy. Audet said discussions are underway with many other mining and exploration companies. He added that his programmers can handle projects from creative to shooting, animating, coding, and through to the final mobile or room-scale VR experience. Room Scale VR is usually powered by the HTC Vive or Oculus Rift, and requires a fairly powerful gaming computer to run it. You can walk around in a room, surrounded by your mining data and see it all in the highest quality possible. The system tracks your head and gives you the ultimate VR experience.

Audet is also developing augmented reality for the mining industry.

Yet another development that Moon Patrol is working on is mixed reality technology using a Microsoft HoloLens. Moon Patrol plans to utilize the Microsoft HoloLens which combines holograms with the real world. Using this technology, mining companies will be able to see their graphically presented mining data in a real world setting. Talks are underway with majors interested in this technology.

“I believe virtual reality is a cutting-edge technology that will be warmly received by the mining sector,” said Audet. “From plotting drill holes to visualizing resource shells, we have gone from paper, to Mylar sheets, to computers and now to VR. This is a paradigm shift for people involved in mineral exploration and mine building.” ■



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Legacy Building Solutions' Fabric Buildings – strong, efficient, and versatile

by Kathrine Moore

Legacy Building Solutions designs, engineers, manufactures and installs fabric buildings that are strong and versatile enough for use by heavy industry in harsh environments. These buildings can be large enough to warehouse materials or house and service very large, heavy equipment. Fabric buildings offer clients some unique advantages.

Because Legacy is a one stop builder that designs a custom building around clients' unique needs, manufactures it and installs it, the process is simplified for the client. The company says, "The process includes a partnership that lasts from pre-construction through building completion." Because there is a "single source of accountability" just one contact

is required on the jobsite, eliminating miscommunication.

Fabric panel manufacturing is completed at Legacy's 70,000 square-foot, climate-controlled facility in South Haven, Minnesota using ISO 9001:2008-certified practices. Every bolt of fabric is quality tested and tracked to the final location on the building. The fabric panels are precisely measured, cut and heat-welded to create a weatherproof cover. The finished panels are rolled and wrapped for transportation to the building site.

The steel beams that comprise the buildings frame are cut on a plasma table. The beams are welded using sub arc welding. Every weld is inspected by an AWS and CWB Certified Welding Inspector.

The steel beams Legacy manufactures for the fabric buildings are rust and corrosion-resistant, especially to salt, fertilizer, sludge, compost and other materials and processes that are harmful to steel. The company states that the "steel support beams used in fabric structures in corrosive environments are typically hot dip galvanized, which is one of the most effective ways to inhibit rust."

Since no screws or nails are used on outside surfaces, the buildings are weather and leak proof. The interiors maintain a consistent temperature, even before HVAC is installed.

Compared to conventional buildings, fabric buildings are quick to build, taking only one-third of the time it takes to build

LEFT: Storage building for a salt mine in Lyons, Kansas. The building contains a fabric liner to stop the salt from corroding the steel frame. Photo courtesy of Legacy Building Solutions.

conventional steel buildings. All components are shipped to the site along with any required specialty equipment. The crew arrives ready to unload and begin the assembly of the building.

Because the specialized, architectural fabric used in this type of building is lighter in mass, even a huge building can be open without beams or supports that limit the use of interior space. Steel frames and architectural fabric “combine to create some of the widest clear span buildings in the industry.”

Fabric buildings have a surprisingly long lifetime. Legacy uses two types of architectural fabric: polyethylene (PE) and polyvinyl chloride (PVC). PVC fabric is heavier than PE fabric and can last up to 25 years or longer; PE fabric can last up to

20 years. Both fabrics are translucent, saving on energy costs, though the lighter PE fabric lets in more light than the PVC. Both types of fabric are available in a variety of weights and colors.

The company offers several structure foundation options giving clients flexibility based on the site and “the potential need to relocate a building at a later date.” Legacy states that, “Make no mistake — a properly engineered fabric building that is intended to remain in one location for more than a few days requires a foundation.”

Though they are designed to be permanent structures, fabric buildings can easily be relocated, expanded or reconfigured. The company states that the fabric coverings are often recyclable and polyethylene fabrics are considered a “low toxin-emitting building material.”

The Legacy Building Solutions team has custom designed and constructed numerous projects for the mining industry. A few examples include:

- A 3,200 sq ft tension fabric explosives storage building in Atacama, Chile
- A 10,241 sq ft tension fabric vehicle maintenance building in Antofagasta, Chile
- A 48,600 sq ft tension fabric Salt Storage building in Lyons, Kansas
- A 24,301 sq ft tension fabric lithium mining storage building in La Negra, Chile
- A 8,160 sq ft tension fabric mining materials reclamation building in Hazleton, Pennsylvania

The buildings are easy to maintain, with replacement fabric available for as little as \$2/square foot. Legacy provides repair services for everything from small tears to large panel replacement and can provide the materials and guidance necessary or, should the client wish it, have a crew come out to do the repairs.

Legacy also services the military, oil and gas sector, agriculture, sports & entertainment. ■

THE HELIUM MARKET IS SHORT ON SUPPLY BUT GROWING IN DEMAND





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Global UAV Technologies consolidating leading holdings in UAV service sector

by Kathrine Moore

Over the last six months, Global UAV Technologies Ltd. [UAV-CSE; YRLLF-OTC; YAB2-FSE] has been significantly growing their Unmanned Aerial Vehicle (UAV) business. The company is headquartered in Vancouver, BC, with regional offices in Saskatchewan and Ontario. Global UAV Technologies' stated strategy is to "dominate the UAV sector by consolidating a diverse group of companies to create a leading service provider." The company has managed to do just exactly that; Global UAV Technologies is a company positioned to lead the growing UAV service sector in terms of expertise, development and services.

In December 2016, Global UAV Technologies, through its wholly owned subsidiary Pioneer Aerial Surveys, acquired the world's first commercially available, UAV-based magnetometer survey system called UAV-MAG™. The company states that the proprietary survey uses ultra-sensitive magnetic equipment to aid in the discovery of diamonds, gold, silver and other types of deposits. It has also been used on lithium properties.

Pioneer Aerial came out of the gate at a



full sprint – as they flew in excess of 900 line-km in their first full month of operation. They have since gone on to do surveys for a number of junior and mid-tier exploration companies as well as majors.

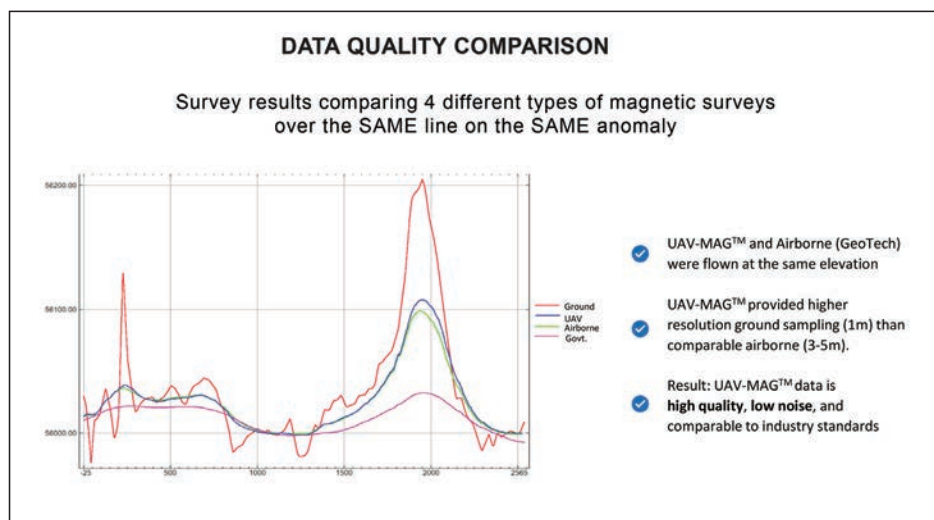
In March 2017, Pioneer Aerial signed an agreement with Abitibi Geophysics, an international geophysics company, to establish a strategic partnership whereby Abitibi and Pioneer Aerial will

Mike Burns, president of Pioneer Aerial, flying a UAV-MAG aeromagnetic survey in Arizona. Photo Courtesy of Global UAV Technologies.

operate on a revenue sharing basis for surveys organized by Abitibi. Those surveys will be branded as AeroVision™ and will use Pioneer Aerial's UAV-MAG™ system.

Also in December of 2016, Global UAV Technologies announced the strategic acquisition of High Eye Aerial Imaging Ltd., a leading UAV surveying company that is using its fleet of multi rotor and fixed-wing UAVs to provide their clients such products as two dimensional and three dimensional ortho-mosaic images, mapping of remote sites, aerial surveys, volumetric calculations, digital elevation modeling, aerial inspections of areas that are difficult to access, as well as environmental assessment and monitoring images.

High Eye recently completed their largest project to date for the Ministry of Environment and Climate Change. The total area covered was ~1,100 hectares.



GLOBAL UAV continued on page 77

First Helium to target rare gas in Western Canada

by Ellsworth Dickson

We are all familiar with helium party balloons; however, considering the more practical and even critical uses of the lighter-than-air gas, it's a wonder it can be sold for such frivolous uses.

Helium is the second most abundant element in the universe but finding economically viable concentrations can be difficult. Known as a noble gas, like neon and argon, the helium in common use today (Helium-4) is inert, non-flammable, non-toxic, and has an extremely low melting point (-272 degrees C).

Before its use in blimps in the 1920s, hydrogen was used as the lifting medium. The age of airships ended with the tragic burning on the Hindenberg in 1938. Of note, helium is 82.6% lighter, or less dense, than air. Hydrogen is only 7% more buoyant than helium, an inconsequential number.

What makes helium the focus of new company **First Helium Inc.** is the fact that there are very limited supplies of this valuable gas and a strong and increasing demand. Indeed, while natural gas sells for less than US \$3/Mcf, helium sells for US \$200-\$500/Mcf.

Besides party balloons, why is helium so useful? It is used for a variety of industrial and medical applications that include MRI machines, leak detection (because its molecules are so tiny), rocket engines, optical fibers, semiconductors, and underwater breathing devices to name a few.

On the supply side, the US supplies its helium to the government which then passes it on to users. However, the American stockpile of helium is decreasing and production is gradually decreasing. Other sources around the world are either in dodgy countries like Russia and Qatar or undeveloped sources in Tanzania.

Helium is created by the radioactive decay of uranium and thorium. And while any helium that makes its way to the surface of the Earth rises and makes its way into space to be lost forever, helium gas continues to be generated. While originally discovered in 1868, it wasn't until 1903 that it was produced from an oil well in Kansas.

First Helium has joint ventured with Petrel Robertson Consulting Ltd. (10% interest), an international company that provides oil & gas exploration and development services to clients in over 40 countries. Combing through data on hundreds of shut-in wells in the Western Canadian Sedimentary Basin, Petrel Robertson has culled them down to the best wells with known economic grades of

helium; that is, at least 0.7% helium.

Pending completion of financing arrangements, the partners will re-enter the prospective shut-in wells (where helium was ignored in the past) either by re-drilling the hole or sometimes by just turning a valve. After a well is cased and flowing again, skids carrying purification facilities are delivered to the wellsite where the helium is separated from natural gas, nitrogen and CO₂ and finally put through a helium scrubber (pressure swing adsorption) to achieve 99% purity. For medical and certain industrial customers, the helium purity can be bumped up to 99.999% purity. The purification process will be contracted out to companies that specialize in those operations.

First Helium is raising \$2.2 million in total. The company was formed through the acquisition of an Australian-listed shell. To start, First Helium will be trading on the ASX (ticker symbol 1HE) to be followed by a listing on the Canadian Securities Exchange – expected in the next few months.

It is anticipated that field operations will begin this fall with due diligence to determine what kind of well access is required to be followed by pre-production preparations. Vance Loeber, Managing Director, said he expects helium production to start within 18 months if not sooner. ■

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Oil Patch Report

by Bruce Lantz

Schachter sees Q4 Oil & Gas investment bargains



Josef Schachter

In these turbulent times in the oil and gas industry, business leaders and investors are challenged to find the right path and make correct decisions. As they try to find the way forward, it can seem that every forecast differs from the others. There's little in the way of consensus.

Enter Josef Schachter. When this experienced investment advisor talks, those in the know listen. And when he says there's a dark cloud on the oil and gas sector horizon, as he does now, you can bank on it.

Now based in Calgary, Alberta, Schachter has been in the investment management advice business for about 40 years, for the past 15 providing oil and gas research coverage to Maison Placements Canada for their institutional clients. He now consults, advises, and delivers presentations to various

boards, companies and organizations as well as producing the *Schachter Energy Report* for individual investors from his own firm, Schachter Energy Research Services Inc. In April he began producing the *Energy Report*, delivered monthly to more than 700 private clients and focused on energy companies and the service sector that supports them.

He has less than bright news for those expecting a near-term recovery in the energy sector, an industry used to high commodity prices. Rather, Schachter suggests a low point is looming, which will bring both disappointment and opportunity, depending on your position. He said the next six months will resemble January-February of 2015 and 2016, with large companies affected both on the service side and in exploration and production (E&P).

"In the next six months the price of oil will likely go to US \$40 [per barrel] or even the low \$30s, and that will mean OPEC (Organization of Petroleum Exporting Countries) will make additional cuts," he said, noting that available data does not support OPEC's rhetoric that oil will fetch US \$60/bbl by 2018. "But when it gets below US \$42, companies will have to take significant impairment charges or violate their covenants, which mean their creditors will force asset sales." "That could be the final bottom."

Even investment giants like Goldman Sachs are beginning to see things that way. They recently revised their forecast to indicate that crude prices could drop below US \$40/bbl unless there's a sustained drawdown in US inventories and rig counts or a strong move from OPEC.

But meanwhile, Schachter acknowledges, companies aren't standing still. Rig counts are up 123% over last year in the US, up 124% in Canada. Companies are making decisions based on US \$43 oil and they're prepared to make investments now, he said, as they capitalize on cost reductions and technological

breakthroughs. "The economies are very attractive right now," he said.

The landscape is changing as conventional light and heavy oil production is being replaced by liquids rich and thermal plays, with the former covering more than 50% of revenues now and the latter offering multi-year growth prospects that should see production of 5 million barrels a day by 2020 and 5.5 million by 2030, he suggested.

"We may not see another oil sands project," he said. "Companies want to go thermal."

Overall energy investments worldwide fell by 12% to just over US \$1.7 trillion in 2016, with electricity investment outpacing oil and gas spending for the first time, the International Energy Agency (IEA) said in its recent *World Energy Investment 2017* report. But oil and gas still accounted for two-fifths of the global energy supply investment, despite a 38% drop in capital spending between 2014 and 2016, the report said.

Following a 44% plunge in the period from 2014 to 2016, upstream oil and gas investment should rebound modestly this year, according to the IEA. Investment in US shale is set to rise by 53% and spending in the big producing regions of the Middle East and Russia is expected to push upstream investment to increase by 3% this year.

Exacerbating the industry downturn of recent years has been the American government's decision to move as quickly and possible toward energy self-sufficiency. And, "they're close, way better than they were," Schachter said, with demand in the 19-20 mmbbl range and internal supply now reaching almost 15 mmbbl. Canada has been able to overtake Middle Eastern supply and has gained market share, now supplying 41.5% of US imports. "Effectively, North America is self-sufficient," he said.

That spills over into natural gas, which is now hovering at under US \$2.40/MMbtu. Schachter is forecasting that the US will be at 4/tcf by

year's end. With OPEC likely to repeat their strategy of production cuts of the late 90s and early 2000s followed by another round of cuts, it will be "a few quarters" before prices come back, he said. OPEC has its own problems with Libya and Nigeria dropping production and the likelihood that, if prices stay low, world demand will be met by non-OPEC nations.

In Schachter's opinion, this is a good time for investors to rid themselves of their margins and "sit on the sidelines" for a while as major operators like **Suncor Energy** [SU-TSX] and **Canadian Natural Resources** [CNQ-TSX] downsize, by measures topping 20%. He said the next two quarters likely will see companies have lower cash flows and miss production targets and "Q2 and Q3 will disappoint the street."

"When we get to the fourth quarter, we will see some bargains," he said, adding that savvy investors will look at the service sector at least as favorably as

energy production, as the former currently offers the best return on investment. He cited Schlumberger, Haliburton and Baker Hughes GE as good bets, along with the low-cost action in the hot, liquids-rich Montney play.

"There are lots of [company] names people can invest in," he said. "It just depends on how much liquidity you want."

And there is considerable opportunity for investors in both Canada and the United States, he noted. "These days, investors are being nimble on both sides of the border," Schachter said.

The industry faces other obstacles. In British Columbia, the failure of the Liberal government to retain power means economic uncertainty as the NDP-Green coalition takes control. Schachter likens it to "shooting oneself in the foot" and predicts massive budget deficits and a "day of reckoning" will come soon if resource development stalls. "I give them 18 months at most," he said.

Government has failed the industry in many ways, he said, fighting over a pie that doesn't exist with politicians shooting themselves in the foot repetitively when faced with problems involving shipping, pipelines, LNG and First Nations. Organizations like CAPP (Canadian Association of Petroleum Producers) and EPAC (Explorers and Producers Association of Canada) are getting the message out regarding the reality of pipelines and the positive impact they can have on job opportunities and revenues. The debate needs a "platform of rationality" instead of a discourse which has until now been largely directed by the "emotional left".

"Do we have the strength at the federal level to use their powers as they did with the Trans-Canada Highway, the railway, etc., when the federal government used its muscle to drive [those projects] through? The Kinder Morgan pipeline will be the test," he said. ■



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Developments in Green Technology

by Jane Bratun

EXPLORING WAVE POWER

As the universal need for renewable energy grows, scientists are exploring harnessing ocean-wave power. Exploring this possibility is the West Coast Wave Initiative (WCWI). According to the WCWI website, ocean waves have a higher energy concentration than wind energy or solar energy. Rough estimates of global available wave power are one terawatt (TW) near shore and 10 TW off shore. World power consumption is approximately 10 TW.

To study ways to harness this power as a global resource, British Columbia's University of Victoria, the WCWI, and the Pacific Institute for Climate Solutions (PICS), a multi-disciplinary group of academics and industry members is committed to quantitatively determining the feasibility, impacts and possible structure of wave energy conversion on Canada's west coast. The group is developing wave energy resource assessment methods, numerical simulation tools for wave energy

converters (WEC) and numerical grid integration toolboxes to create an accurate assessment of the feasibility of wave energy conversion in British Columbia.

The research team has mapped the waves off British Columbia's coast at a 50-metre resolution using data from the past 12 years. This information could help wave technology companies who want to test their instruments on different kinds of waves, said Dr. Bryson Robertson, P.Eng., Program Manager at WFWI. "We understand the wave climate off the coast better than anyone else. We ran the largest fleet of wave measurement devices specific to marine energy in the entire world," he said.

In a recent report from the University of Victoria-led group, Robertson explained that distant storms across the Pacific Ocean whip water up into an endless supply of energy-packed waves bound for the British Columbia shoreline. By the time those waves arrive at the west coast they're so

powerful that wave-energy converters in British Columbia waters could generate from them as much as 324 terawatt hours annually. That's six times the province's energy requirements, the authors found.

The report also described a few different types of wave-energy converters. Anchored buoys rely on floats and the up-and-down motion of swells to drive their hydraulic cylinders, and wormlike chains of floats use motion at their hinges to generate electricity. Wall-like flaps lean back and forth in the waves and drive hydraulic rams at their bases on the sea floor. And, elevated reservoirs catch and convert surging water with help from gravity. The converters are massive and just one of them, anchored in the right place, could produce enough energy to power more than 50 homes, according to the report, which used a prime location off Ucluelet, a district municipality on the Ucluelet Peninsula on the west coast of Vancouver Island, British Columbia, as a case study.

Robertson notes that jurisdictional questions for such offshore projects are a challenge, as well as bringing down the production cost. Electricity generated from waves is now estimated to run between \$390 and \$1,450 per megawatt hour. That's roughly four to 14 times British Columbia's residential consumer rate, according to the report. The wide range was attributed to varied construction and operating costs, and uncertainty around permitting and power output.

When asked whether he saw wave power as a viable electricity source,



Dr. Bryson Robertson, (in blue jacket) and the boatman launch a WatchMate and TriAXYS wave-measurement buoy near Ucluelet, off the west coast of Vancouver Island, British Columbia. Photo courtesy West Coast Wave Initiative.



GREEN TECHNOLOGIES

Robertson said: “Not in the immediate future. Not tomorrow.” But he predicts the financial picture will improve and the energy source will come into its own. “The costs are going to go down. If we look at all of our other energy-generating technologies, they were all exceedingly expensive off the bat. You have no economies of scale; you’re testing multiple technologies, concepts, ideas and methods, and a lot of them don’t work.”

EXTRACTING ENERGY FROM SOLAR PAINT

Researchers at the Royal Melbourne Institute of Technology (RMIT) in Melbourne, Australia have created a new solar paint that can produce clean energy. As described on the RMIT website, the paint draws moisture from the air and splits it into oxygen and hydrogen. As a result, hydrogen can be captured as a clean fuel source.

The paint contains a recently developed compound that looks and feels like silica gel commonly used in sachets to absorb moisture and keep food, electronics, and medicine dry, but it acts like a semiconductor. Lead researcher, Dr. Torben Daeneke, says, “We found that mixing the compound with titanium oxide particles leads to a sunlight-absorbing paint that produces hydrogen fuel from solar energy and moist air.”

According to colleague, Professor Kourosh Kalantar-zadeh, hydrogen is the cleanest energy source on the planet and can be used in fuel cells as well as in conventional combustion engines as an alternative to fossil fuels. Because titanium oxide is the same white pigment commonly found in wall paint, when combined with the new material, the solar paint can be applied to “convert a brick wall into energy-harvesting and fuel-pro-

duction real estate,” said Daeneke. Using moist air eliminates the need for filtered or clean water to feed the system. And, any location that has water vapor in the air, including remote areas, can produce fuel.

“This system can also be used in very dry but hot climates near oceans. The sea water is evaporated by the hot sunlight and the vapour can then be absorbed to produce fuel,” said Kourosh Kalantar-zadeh. “This is an extraordinary concept – making fuel from the sun and water vapour in the air.”

DEVELOPING INSTANTLY RECHARGEABLE BATTERIES

Electric vehicles require charging ports in convenient locations to be viable, but a new battery technology will allow hybrid vehicle drivers and electric vehicle drivers to charge their vehicle batteries in a way similar to conventional gas station refills. In a press release, John Cushman, Distinguished Professor of Earth, Atmospheric and Planetary Science and a Professor of Mathematics at Purdue University in West Lafayette, Indiana said, “Electric and hybrid vehicle sales are growing worldwide and the popularity of companies like Tesla is incredible, but there continues to be strong challenges for industry and consumers of electric or hybrid cars.”

Cushman, who leads the research team, went on to say, “The biggest challenge for industry is to extend the battery’s charge life and to provide the infrastructure needed to actually charge the vehicle.” Cushman added, “The components must be safe enough to store in a family home, stable enough to meet major production and distribution requirements, and must be cost effective.”

The Purdue researchers plan to use

their new technology to create an affordable, environmentally friendly, and safe “instantly rechargeable” battery. Their company, **IFBattery, LLC**, based in West Lafayette, Indiana, will commercialize and develop the technology. They say this breakthrough will not only speed the switch to electric vehicles by making them more convenient to drive but will also reduce the amount of new support infrastructure needed for electric cars.

The new battery model is a type of rechargeable flow battery. Recharging is provided by two chemical components dissolved in liquids contained within the system and most commonly separated by a membrane. One of the biggest advantages of flow batteries is that they can be almost instantly recharged by replacing the electrolyte liquid, while simultaneously recovering the spent material for re-energization.

The Purdue team’s flow battery system is unique because, unlike other versions of the flow battery, this one lacks the membranes that are costly and vulnerable to fouling. “Membrane fouling can limit the number of recharge cycles and is a known contributor to many battery fires,” said Cushman. According to the press release, transitioning the infrastructure to accommodate cars using these batteries will be easier than designing and building a host of new charging stations. Existing pumps could be used for these battery chemicals, which are safe.

The biggest hurdle to production isn’t obtaining the materials, which are cheap and plentiful. The researchers need more financing to complete the research and development and to put the batteries into mass production. To overcome this problem, they’re publicizing the innovation to draw interest from investors. ■

COMING EVENTS

The **Sprott Vancouver Natural Resource Symposium** will be held July 25-28 at the Fairmont Vancouver Hotel, Vancouver, British Columbia. Your host will be Rick Rule. For more information, go to <https://www.naturalresourcesymposium.com/>

MINETEK 2017 will be held July 7 at the Sheraton Centre Hotel Toronto, 123 Queen Street West. Website: www.auro-consulting.com/ Phone: +1 (416) 907 0576 Email: info@auro-consulting.com

Conference of Metallurgists COM 2017 will be held August 27-30 at the Hyatt Regency, Vancouver, British Columbia. This is the 7th World Gold symposia and the 4th Nickel-Cobalt conference. The Conference will include a trade show lounge, short courses, technical tours, student and social activities. Metallurgy and Materials Society of CIM Website: <http://web.cim.org/com2017> Phone: (514) 939-

2710, ext.1343 Toll-free: 1-888-985-9737. Fax: (514) 939-2714 Email: metSOC@cim.org 6, 2017 | Saskatoon,

Discover Mongolia Forum will be held September 7-8 at Blue Sky Hotel in Ulaanbaatar, Mongolia. This year's agenda will have sessions on Au-Cu, uranium exploration to extraction, oil – new opportunities, and cooperation with the largest consumer of minerals PRC. Also the September update on the new exploration license granting, issues and positives in investing in the exploration. For more information, go to <https://discovermongoliaforum.com>

The Canadian Institute of Mining, Metallurgy and Petroleum will present the **Maintenance, Engineering and Reliability / Mine Operators Conference** September 24-26 at the TCU Place in Saskatoon, Saskatchewan.

Contact: Chantal Murphy. Phone: 1-514-939-2710 ext.1309 Website: <http://memo2017.cim.org> TEMBER

Mines and Technology 2017 will be held at the Delta Toronto Hotel, October 2 -4 and will focus on a range of topic areas that are of interest for the next-generation mine. For more information, go to <https://toronto.minesandtechnology.com/>

Minetek Canada will be held October 17 in Toronto. The program will be covering a broad array of issues, challenges and opportunities important to all in the mining business. For more information: www.minetek.ca

The 43rd annual **New Orleans Investment Conference** will be held October 25-28 at the Hilton New Orleans Riverside, 2 Poydras Street. For more information, go to <http://neworleansconference.com/> For reservations at the Hilton New Orleans Riverside,

call the hotel directly at 504-561-0500 (or 1-800-Hiltons) or visit their website for the conference discounted rate.

The **2017 Silver and Gold Summit** will be held at the Hilton Union Square, 333 O'Farrell Street, San Francisco, California November 20-21. This is the third year occurring in San Francisco having previously being relocated there from Spokane, Washington, where it was held for the past several years.

Cambridge House International Inc. and Katusa Research will co-produce the **Silver and Gold Summit**. Tickets are US \$40.00 in advance or \$60.00 at the door. For more information, Telephone: (604) 687-4151 Fax: (604) 687-4726 Toll-free: 1-877-363-3356 (US & Canada) Email: info@cambridgehouse.com Website: <https://cambridgehouse.com/event/66/the-silver-and-gold-summit-2017> ■

For investment information on these companies contact them directly

RW 15-5

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|---|--------------------------------------|------------------------------------|
| ■ Alexco Resource Corp. (37) | ■ Harte Gold Corp. (60) | ■ Pershing Gold Corp. (31) |
| ■ Argo Gold Inc. (32) | ■ IBK Capital Corp. (52) | ■ Pretium Resources Inc. (27) |
| ■ bcontact (73) | ■ Indigenous Consultation BC (63) | ■ Probe Metals Inc. (20) |
| ■ Blind Creek Resources Ltd. (36) | ■ Jaxon Minerals Inc. (42) | ■ Red Pine Exploration Inc. (60) |
| ■ Bonterra Resources Inc. (14) | ■ K2 Gold Corp. (4) | ■ Red Star Gold Corp. (47) |
| ■ Bunker Hill Mining Corp. (80) | ■ Klondike Gold Corp. (38) | ■ Ressources Québec (16) |
| ■ Bunker Hill Mining Corp. (80) | ■ Klondike Silver Corp. (51) | ■ Rockhaven Resources Ltd. (36) |
| ■ Commerce Resources Corp. (61) | ■ Mag One Products Inc. (19) | ■ Secova Metals Corp. (5) |
| ■ Cornerstone Capital Resources Inc. (45) | ■ Marathon Gold Corp. (9) | ■ Silver & Gold Summit (67) |
| ■ Corriveau J.L. & Ass. Inc. (77) | ■ Metanor Resources Inc. (15) | ■ Sirios Resources Inc. (12) |
| ■ Eastmain Resources Inc. (13) | ■ Midland Exploration Inc. (15) | ■ Subscribe Technologies Inc. (37) |
| ■ Eldorado Gold Corp. (19) | ■ Mines & Technology Conference (79) | ■ Trilogy Metals Inc. (46) |
| ■ Ellis Martin Report (77) | ■ Minetek (73) | ■ Triumph Gold Corp. (40) |
| ■ Ely Gold Inc. (35) | ■ Monarques Gold (17) | ■ Victoria Gold Corp. (41) |
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| ■ Golden Arrow Resources Corp. (9) | ■ Osisko Metals Inc. (18) | |
| ■ GraphiteOne Resources Inc. (47) | ■ PDAC (2) | |

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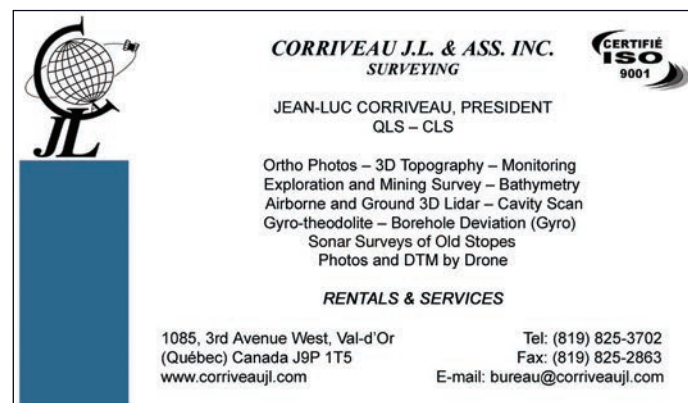
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GLOBAL UAV continued from page 70

High Eye provided aerial mapping topographical data for 36 km of shoreline in Georgian Bay, Ontario in order to determine the flood hazard limit elevation.

In order to ensure that their subsidiaries are in good hands, Global UAV Technologies has retained highly specialized staff in both of the above mentioned companies.

Global UAV Technologies recently reported that its first full quarter that incorporated the two subsidiaries generated \$181,203 of revenue – an impressive start.

In May of this year, Global UAV Technologies further expanded their expertise and services by signing letters of intent with two more companies: Easy SFOC and NOVAerial Robotics.

Easy SFOC is a regulatory consulting service that assists clients with the preparation of Special Flight Operation Certificates (SFOCs) for UAV operations

in Canada. The company describes Easy SFOC as a web-based service that uses a proprietary, interface to collect information on a client's site locations, operations, and crew information quickly and efficiently. "The client is then provided with full support and guidance along with a customized SFOC application ready to submit to Transport Canada."

NOVAerial manufactures and designs helicopter UAVs. Jason Springett, President of Global UAV Technologies said about NOVAerial, "We are very excited for the addition of NOVAerial to Global UAV Technologies. NOVAerial is a dynamic company at the forefront of manufacturing, engineering and performance of the rapidly evolving, enterprise grade helicopter UAV sector...We will now have industry leading holdings in UAV service providers, manufacturing and engineering, and regulations, all of which are experiencing increased growth."

The company states that the purchase of

NOVAerial includes "all the manufacturing equipment, designs and specifications, current inventory, existing orders and prototypes of new UAV designs that NOVAerial is currently developing."

Global UAV Technologies says that NOVAerial's Procyon 800E, "is quickly becoming renowned for its performance, practical design, high-quality, made in-house components and reliable flight control system." The Procyon 800E's compact design and construction make it reliable, easy to maintain and less expensive than similar UAVs. It is ideally suited, the company says, "for complicated and high-performance UAV applications, offering vertical take-off capability, while combining high speeds and long flight times not possible with multirotor UAVs." NOVAerial Robotics Inc. is run by Robert Lefebvre, a mechanical engineer who is very well respected in the field of robotic aviation and a mentor for Google's Summer of Code program. ■



Epilogue

by David Duval

Peak Gold assumptions clouded by market forces

In 1956, M. King Hubbert, a geologist for Shell Oil, predicted that US oil production would peak in 1970 which turned out to be partly true when crude oil production peaked that same year, not to be eclipsed again until the shale boom began.

Now a similar dire prediction is being made for gold which, unlike oil, is not a fuel source and in fact retains its chemical properties forever, justifying its title as the “eternal metal.” That’s both good and bad in a market sense as all the gold that’s ever been mined still exists and a large part of it is available for sale in the marketplace.

The resurgence in shale oil production was based on the implementation of a major technological innovation – horizontal drilling – which, when combined with hydraulic fracturing or fracking, dramatically increases the productive capacity of oil-bearing formations, the best examples being the Marcellus Shale of the Appalachian Basin and the Bakken Formation of North Dakota.

Don’t expect that any such market-altering innovation will spike gold output, the last real innovation being the broad application of heap leaching to low-grade gold ores. In recent years, automation has played a significant role in driving unit costs down, especially in open pit operations, but much of this was a prerequisite to justify the mining of low-grade, marginally economic ores.

Perhaps a good analogue for gold’s production future is the case of South Africa – once the world’s largest gold producer by far. The country produced over 1,000 tonnes of gold in 1970 but output has since fallen to below 250 tonnes. Declining grades, higher costs associated with deeper

mining, militant labour unions, political instability, along with an industry consolidation that saw marginal mines closed, have all contributed to the nation’s declining gold output. The investment climate in Africa has also deteriorated, particularly in South Africa and Tanzania.

Reports also suggest that 2016 saw global mine production fall for the first time since 2008 and according to Thomson Reuters “few new projects and expansions [are] expected to begin producing this year, and those in the near-term pipeline are generally fairly modest in scale, hence our view that global mine supply is set to continue a multiyear downtrend in 2017.”

The world’s largest gold producer is China although little if any Chinese gold production is said to leave the country. China has also become the world’s largest gold buyer. While gauging Chinese gold output can be challenging, evidence suggests that China has been the only major producer to increase gold production in the past few years.

There are obvious reasons for this trend including the fact China has distinct production advantages over other countries, namely a much easier regulatory climate for new mines. This is simply not the case in the West where the time frame from discovery to commercial production in some cases is 15–20 years. That being the case, it would appear that new gold production free of regulatory time constraints will be from countries with less burdensome regulatory environments. In general, these countries are not seen as being receptive to foreign investment.

Canadian gold mining companies in particular have been placing a renewed emphasis on reducing production costs which in most cases means mining higher

grade ores at lower annual production rates. Bigger has not always proven to be better as companies like Barrick have learned to their detriment following the development fiasco at its Pascua Lama Project on the Chile/Argentina border.

Reducing debt loads, much of it associated with asset purchases (which in the case of Kinross involved taking a \$7 billion write-down for its Tasiast Mine in Mauritania), has also been a priority for gold mining companies. This has often come at the expense of exploration budgets to replace reserves depleted by mining. Given the lead time to commercial production in the West, this has potentially ominous implications for future global output.

Analyzing future gold production, demand, and price upside is highly subjective and any such analysis usually fails to take into account trading aberrations in the marketplace for gold which is known to be manipulated (especially in futures markets) by big banks and other nefarious players. Yet against this backdrop there remains an acute shortage of gold with reports that the largest refiners are working 24/7 to meet demand. Physical gold is becoming scarce, difficult to source and mostly spoken for, says gold analyst/author James Rickards.

Rickards believes that gold’s uptrend, which began on December 15, 2016, remains intact and is “set for a rally above US \$1,300 per ounce, which would exceed the prior high of US \$1,293 per ounce on June 6.” He also sites key economic indicators including slowing auto and retail sales, disinflation, lower labour force participation and many other indicators that are turning negative in concert with US Federal Reserve tightening. ■

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