

MINING • OIL & GAS • ALTERNATIVE ENERGY

# RESOURCEWORLD

INVESTMENT OPPORTUNITIES AND NEWS **magazine**

Volume 6 Issue 3

# Riding out the Market Volatility

Exploring Québec

Why cobalt counts

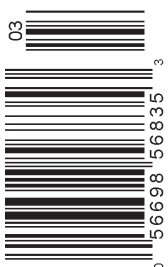
Peak Oil: fact or fiction?

Shore Gold's  
Saskatchewan  
Diamonds

Hughes  
Exploration  
Group

**YELLOWHEAD MINING'S**  
multi-billion lb. Harper Creek  
copper project

\$5.95 CDN / US



Publications Mail Agreement  
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**SOLA RESOURCE CORP.** is advancing its major diamond exploration and development project in North western Brazil. The Pimenta Bueno region, within the SE section of the State of Rondônia, is part of a large diamondiferous kimberlite province. Using accelerated kimberlite indicator minerals and geophysical surveys Sola has to date detected seven target areas yielding kimberlite indicator minerals. Macrodiamonds accompany the indicator mineral suites in a number of cases. Pitting, drilling and sampling are now further testing these areas.

Sola has two diamond drills actively quantifying both the diamond-bearing Carolina kimberlite and new kimberlite occurrences in the vicinity of the areas where significant alluvial and colluvial diamond production took place in recent years. Using its 400-tpd jig plant, the Company has commenced bulk-testing of the various kimberlite phases of the Carolina body. Results from these bulk tests are anticipated in Q1 of 2008.

The Company is progressing well with its major regional diamond exploration program aimed at determining the diamond mining potentials of its 4191 square kilometre property on this highly accessible part of the Brazilian Shield.

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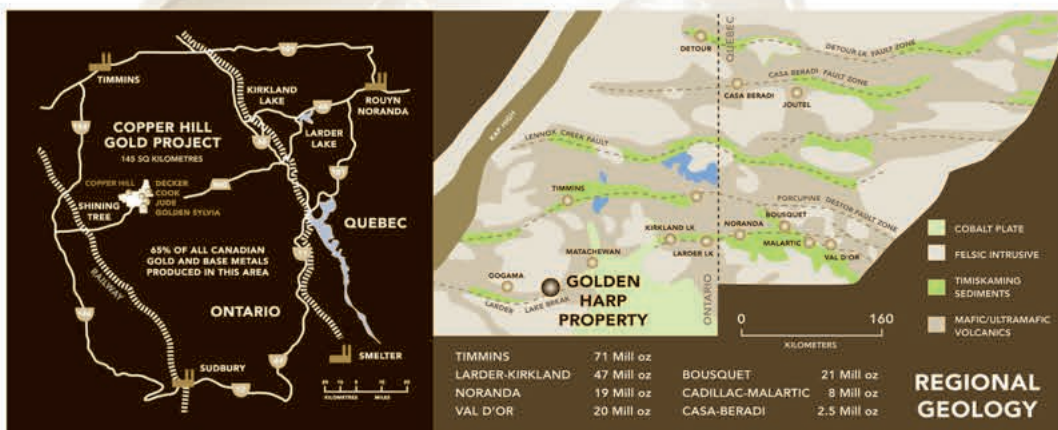


# Launching Golden Harp

Golden Harp Resources Inc. (GHR) began its corporate life with the acquisition of an enviable gold and base metal project in the heart of the Abitibi Greenstone Belt of Northern Ontario, one of the richest mining districts in the world, well known for its mineral diversity and prolific number of gold and base metal deposits. Golden Harp's 100%-owned, Copper Hill project covers 145 km<sup>2</sup> over portions of six townships in the Larder Lake Mining District.

## Copper Hill Property Highlights

- 145 km<sup>2</sup> contiguous land package within the prolific Abitibi Greenstone Belt
- Situated proximal to important regional fault structures, along which gold has been found and mined
- Property offers excellent discovery potential – four known gold zones and a copper zone identified to date and extensive areas of the property remain to be explored
- Property hosts a variety of highly favourable geological settings prospective for gold, copper, and nickel, including:
  - gold-bearing iron formations
  - gold-bearing quartz-carbonate vein systems
  - potential VMS environments
- Extensive exploration and diamond drill program planned to test numerous priority targets
- Property benefits from excellent road access, infrastructure and a year round exploration season
- Experienced board and management team with a transaction-based approach to building shareholder value



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*Resource World Magazine* is published by *Resource World Magazine Inc.*, a division of Dickson Media, Inc. *Resource World* is published 10 times a year (by *Resource World Magazine Inc.*, Suite 709, 700 West Pender St., Vancouver, BC V6C 1G8. President: Ellsworth Dickson; Vice-President: Paul Dickson. ©2002-2008 *Resource World Magazine Inc.*, all rights reserved. No part of this magazine may be reproduced, in whole or in part, without the expressed permission of the publisher. Reprints available by request at the above address or by emailing: info@resourceworld.com.

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Subscription, advertising and circulation information can be obtained by visiting our website: [www.resourceworld.com](http://www.resourceworld.com) or contacting our offices by phone: 1-877-484-3800 or by writing to the address below.

Publication Mail Agreement No. 40845066  
Return undeliverable Canadian addresses to:  
Circulation Department  
709-700 West Pender Street  
Vancouver, BC Canada V6C 1G8  
Email: [info@resourceworld.com](mailto:info@resourceworld.com)  
Issn 1712-253  
Printed in Canada by Mitchell Press



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## Risk, reward and opportunity

Like all industrial sectors, the mining industry faces its own unique challenges. Some of them can be addressed by an individual company by acquiring valuable mineral properties, raising sufficient exploration funds, hiring talented employees and launching effective promotional programs. Other challenges go unaddressed because an individual company cannot do anything about the price of metals, current market sentiment and changing foreign government policies. For example, recently the French government did not approve final construction permits for Iamgold's Camp Caiman in its protectorate – French Guiana. No reason was given in spite of Iamgold, a reputable company, doing everything right.

Many quality mining stocks remain in a down-leg even though – gold and silver, for example – reach new highs. Often the reverse is true with equities leading the price of metal. At the same time, we have the U.S. sub-prime mortgage fiasco spreading its negative influences far beyond the borders of the 'land of the free.'

In any case, for a variety of reasons, which we cover in Robert Simpson's feature "Riding Out the Market Volatility," the stock market is stuck with fear as the dominating emotion. What we need, of course, is a change in market sentiment to one of hope and a positive outlook. Investors need to be of the view that money spent on stocks will be good investments – why else would they do it?

However, as in real estate, much of the capital gains realized in selling are actually on the 'buy side' by acquiring undervalued investments. That's why it is so important – right now – to carefully investigate potential share purchases. If one waits until there is total confidence that things have turned around, there is the likelihood of being a 'Johnny-come-lately' and, since no stock keeps going up forever, most of the capital gains will have already been realized by quick and smart investors.

With most metal analysts predicting higher prices for gold and silver (it's already happened to platinum and cobalt) present market conditions are ripe with opportunities to pick up good stocks at very favourable prices.

There is no doubt that risks will always haunt the mining sector, but nevertheless, there are quality undervalued companies out there. Yes, I know it's hard to call a 'bottom', however, that doesn't mean we should not seek out undervalued companies. If we deem them to be truly undervalued, even if we didn't call the exact bottom, they should eventually rise to their true market value.

Some say, "the market is always right." I don't think that is true. I think that the market is *eventually* right. Often share prices lag behind the true value of the stock – that's one of the reasons stocks rise in value. As we see it here at *Resource World* magazine, we believe there are bargains out there and it's only a matter of time before equities catch up with metal prices. Eventually, the stock market does seek an equilibrium. Couple that with the tremendous demand for all sorts of metals by the developing world, add the fact that gold and silver represent real money and it's just a matter of time before shares in quality companies see an increase in value.

Don't miss out on this opportunity. Once the market catches up with metal prices, it will be too late. ■

**Ellsworth Dickson**, *Editor in Chief*

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# Riding Out the Market Volatility

by Robert Simpson

Four months ago, as international markets were peaking, bankers started their fiscal year in giddy anticipation of a big 2008 payday. The consensus view was the economy would keep humming along and China would keep consuming resources, providing CEOs with the faith needed to launch aggressive takeovers, banks with the comfort to provide easy credit and investors a reason to commit their savings to high risk stocks. Now, talk that the United States is headed towards recession has those same CEOs pulling in the reins.

The credit crunch has banks reluctant to lend and investors are increasingly sitting on the sideline, rather than buying on the dips. With all the turmoil in the financial sector, the question in the minds of those who invest in mineral exploration and development stocks is: "are we headed towards a sustained bear commodities market or is this only a short-term correction in the midst of a commodities super cycle?"

From the broad macroeconomic perspective the news is mixed. According to Victor Adair, MF Global senior vice president and derivatives portfolio manager, "The sell-off is rooted in problems in the financial sec-

tor that spill over into every sector of the economy and no new rally can begin until the financial sector is healthy."

What's happened, explains Adair, is that loads of complex debt instruments tied to credit, given to borrowers with poor credit, has wreaked havoc on financial markets.

Michael Levy, director of Border Gold Corp., agrees. "Consumers make up two-thirds of the economic activity in the U.S. and Canada and without easy credit available, it's the unease of investors that may be the biggest obstacle to the welfare of the economy. Investors are eyeing anything tied to risk with skepticism, even in markets once considered safe – even commodities like oil and precious metals where prices have soared over the past few years."

But times are changing. Now many strategists say the outlook is much more uncertain. They recommend paring back existing risky holdings or adjusting their portfolios from too many speculative commodity stocks to larger cash and cash equivalent components.

"In my mind, there are three ways to invest in the market – you can be long, short or on the side. I am quite happy to be on the sidelines right now," says Levy.

Both Adair and Levy agree market volatility is being driven by news, systemic of a bear market. In February, for example, when news that Warren Buffet waded into the monocline mess, offering to throw the financial markets a lifeline, the markets were quick to react positively, only to drop again a few days later.

Reg Ogden, vice president of Canaccord Capital Corporation in Vancouver, says the same goes for mining stocks. "Exploration stocks are only getting attention on positive drill results right now – the market is volatile and good news is driving it," says Ogden. "Investors who have placed bets on raw commodities – through exchange-traded funds, for example – should expect much more volatility this year."

"We are seeing a lot more short-term trading in this market, but again this is a reflection of the credit-crunch. Investors are less willing to go long," says Levy.

"For a while, commodities were just a one-way bet, but now there will be a tug of war between the bulls and the bears," says Ogden. He also cautioned investors to remember the impact of the dollar on commodity prices can work both ways. He said a sharp rally in the US dollar could put



Victor Adair, MF Global senior vice president and derivatives portfolio manager.



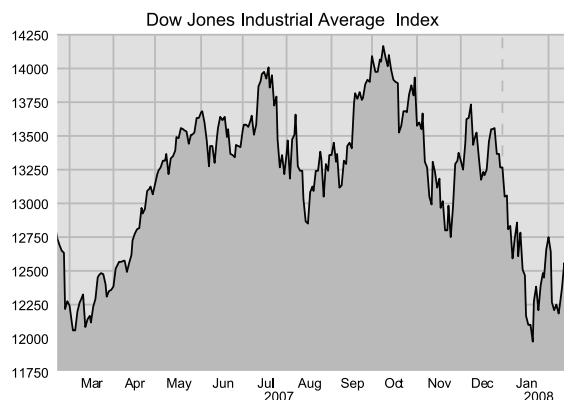
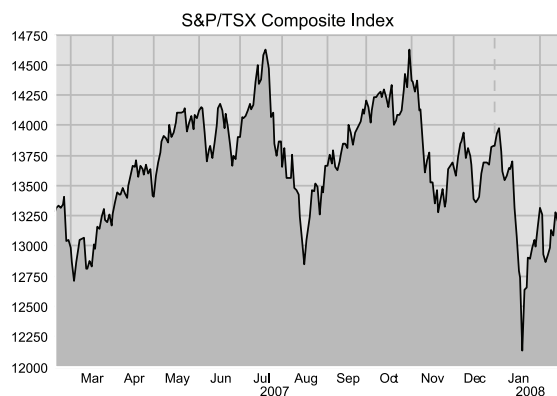
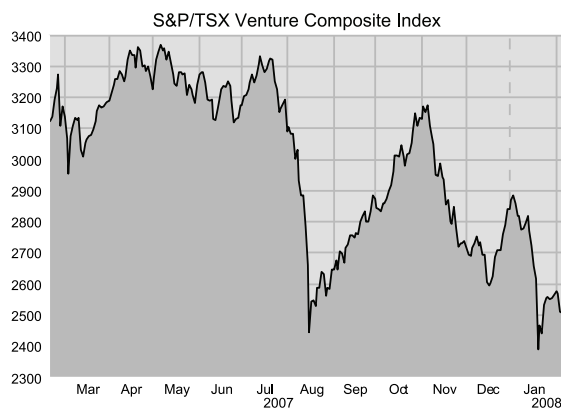
Michael Levy, director of Border Gold Corp.



Reg Ogden, vice president, Canaccord Capital, Vancouver.



MOST EXPERTS BELIEVE  
THE CURRENT ECONOMIC  
SLOWDOWN IS TEMPORARY,  
BUT PREDICTING A BOTTOM  
PROVES DIFFICULT.



a dent in the commodity markets, while a declining dollar would help to lift prices.

Ogden is not predicting a long-term recession. He is expecting annualized domestic economic growth to slow to around 1.5% in the first half of the year, and then rise to around 3% in the second half of the year. And he does not subscribe to the theory of decoupling, which holds that emerging economies will keep churning along no matter what happens to the U.S. economy. He predicted that even a slowdown in U.S. domestic growth, without a full blown recession, would be enough to dampen global demand for a whole range of commodities resulting in short-term volatility in resource stocks.

The U.S. sub-prime credit crunch will have to work its way through the financial markets before we will see any significant stability. According to Levy, we have seen two waves of the almost \$700 billion in write-offs with a third wave inevitable in the second or third quarter. Next, he says, there will be a cooling off period that could last for up to another two quarters or even longer depending how quickly consumer confidence is regained.

But should the financial markets not recover as quickly as most hope, there is a real chance of a full blown recession in the U.S. and this would have a significant effect on metal prices.

## EMERGING MARKETS

Although some emerging markets continue to fare relatively well, others are being hit hard as confidence in the strength of those markets erodes in the face of concerns about the increasingly gloomy economic reports out of the U.S. What most strategists are watching for is a global recession resulting from a significant slowdown of the Chinese economy – a driving force for the recent record metal prices. If demand for metals in the U.S. and China diminishes, commodity prices could plummet to levels where marginal mining projects are put on hold and money that once poured into exploration stocks would dry up.

There are many who believe that growth in the Chinese economy might slow more than expected, having a long-term impact on commodity prices. The emerging markets research group at RBC Dominion Securities Inc., led by Nick Chamie, head of emerging markets research, and Russell Jones, global head of fixed income and foreign exchange research, believes the expectations of China's growth are "overly optimistic" and that the "odds of Chinese growth underwhelming those expectations are growing and material."

The team suggests the growth rate for China's gross domestic product could fall from 11.2% in the fourth quarter of last year to around 8% or 9% in the final quarter of this year. They don't believe that China will remain immune as global demand slows, given it is highly dependent on external demand. Domestic consumption only accounts for about 40% of China's GDP, unlike other large emerging markets, where it accounts for around 50% to 60%. They also worry about what they think are bubbles in Chinese stock and real estate markets – bubbles that could burst if the monetary policy becomes more restrictive, as China's central bank seeks to deal with "uncomfortably high" inflation. In that scenario, China would be hit by concurrent economic and financial headwinds.

Since China now accounts for about 10.9% of the global economy, a significant slowdown there would have important implications for

## A Quick Resource Stock Investor Guide

- Don't be over-weighted in too many speculative stocks
- Keep some of your portfolio in cash
- Watch for developing trends or companies instrumental in creating a trend
- Look for companies with proven resources or high quality assets
- Look for companies in the early stages of production
- Favourable drill results are driving stocks up – look for companies with a good chance of great assays

emerging markets, commodity prices and global markets in general, they said. A 'stumbling' in China's growth could "severely damage sentiment towards emerging markets, potentially derailing the positive BRIC story and ultimately diminishing inflows into emerging markets' real and financial assets, while taking emerging market risk premiums higher and currencies lower," the team said. BRIC stands for Brazil, Russia, India and China.

Levy agrees. "I think we are going to see a significant and wide sweeping correction followed by five or six more years of steady growth.

### CANADIAN MARKETS

Throughout the investment sector there is plenty of debate about Canada's place in the global marketplace and if Canadians will feel the pinch of a U.S. recession. Initially, it appears unlikely. Statistics show that the U.S. economy continues to suffer, while Canada is humming along with a great many new jobs and robust economic growth, cementing a perception that Canada is decoupling (or separating) from the U.S. According to Eric Lacelles, chief economist and rates strategist at TD Securities, "We have established over the long-term that Canada and the U.S. usually go in a similar direction, but there are a myriad of opportunities for decoupling."

Lacelles says, "despite the similarity, the engines for growth may differ greatly between the two countries. In Canada, fiscal stimulus, healthy domestic demand, a solid housing sector, and a robust raw materials sector are likely to support growth, but exports could lag due to manufacturing weakness, unorthodox Canadian dollar strength and softer U.S. demand.

In the U.S., consumption will soften and housing activity will remain weak."

"There is reason to think there is a possibility for a decoupling, even though Canada will clearly be slowed down as well," says Lacelles.

Accordingly, rather than decoupling or even diverging, the picture of our two domestic economies is more one of a synchronized slowdown with the U.S. leading the way. True, Canada's trend of domestic demand growth has been persistently higher than America's since early 2001. But that simply means that the overall perception that the U.S. economy has tended to outperform Canada has been driven primarily by differences in international trade performance.

The bottom line? Canada rarely decouples significantly from the U.S. economy, and when it happens, it is usually quite temporary and financial markets and investors should reposition themselves over the next six to 12 months as the degree of economic synchronization becomes more evident.

### INVESTING IN RESOURCE COMPANIES

Standard and Poors has warned that the single biggest risk mining and metals companies face in the next two quarters is dampening demand for metals. According to S&P credit analyst Marie Shmaruk, "While a prolonged recession could hurt mining companies internationally, given our current economic forecast the companies likely to be hardest hit are concentrated in the U.S. market."

The China and India factors could also have a significant effect on industry supply, demand and pricing. Slowing Chinese demand would likely cause oversupply and prices would be affected. According to Ogden, if this were the case it would be

short term, as the Indian economy is quickly transforming from a services economy to industrial. (See Leonard Melman's column on page 30 for more details) Demand for commodities is likely to remain high, and even though this may be a longer time horizon than two or three quarters, he thinks this is part of a 15-year, super-cycle that has about another seven or eight years to go.

Ogden says that whether or not the U.S. economy has slipped into a recession, investors should be prepared for slower global growth this year, and he advised investors to lighten up on commodities, but to watch for developing trends or companies that are instrumental in creating a trend.

Michael Levy says this market scares him. "I would be very choosy about investing in speculative stocks. I'd be looking for companies that have proven resources or are in the early stages of production," he says.

Over the short term, according to Adair, as the easy credit dries up, the general public's appetite for high-risk investments will be reflected in the value and availability of money for speculative mining stocks. He says, for those who have been through this before, they know that companies with solid assets, good management and a strong treasury will remain in demand, while companies with anything less could soon have difficulty financing and attracting speculative investors. "Invest with caution and remember it is not so important to be right about the markets as it is to make solid returns on smart investments," he says.

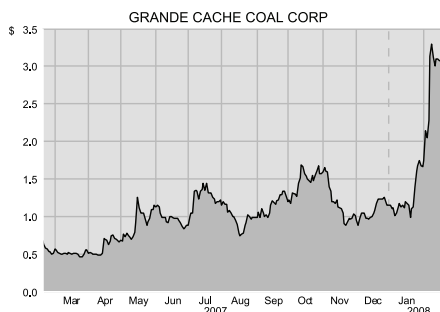
All of the strategists agree in at least one way, saying economic slowdown, will continue to prompt uncertainty and volatility in commodity markets. But again, it is the companies with quality assets that will be the ones most likely to see share appreciation. ■




# STOCK MARKET WINNERS

A list of the best percentage gainers of resource company stocks, both mining and oil & gas, over the past three months. As can be seen, some of the share price increases are quite spectacular, indicating that in spite of the current market volatility, there are substantial capital gains to be made.

Symbol	Name	Three-Month Range	Current Price (19Feb08)
ACV	Academy Ventures Inc.	\$0.40-1.78	\$1.60
BIR	Birchcliff Energy Ltd.	4.26-9.12	8.52
CAA	Callinan Mines Ltd.	0.80-2.20	1.60
CG	Centerra Gold Inc.	8.90-15.10	13.76
CHQ	Challenger Energy Corp.	1.60-5.20	3.80
CPQ	Canplats Resources Corp.	2.35-3.84	3.50
DGC	Detour Gold Corp.	9.05-18.45	18.00
ENG	Energulf Resources Inc.	0.57-3.95	2.80
GCE	Grande Cache Coal Corp.	0.85-3.42	3.40
GLQ	Global Copper Corp.	2.88-7.35	6.98
GSA	Ground Star Resources Ltd.	0.49-1.71	1.32
HLB	Hillsborough Resources Ltd.	0.38-0.90	0.78
KCL	Potash One Inc.	1.35-4.00	3.95
OSE	OSE Corp.	0.13-2.10	2.10
PLG	Pelangio Mines Inc.	1.60-4.60	4.48
QMI	Queenston Mining Inc.	1.80-3.68	3.43
SVM	Silvercorp Metals Inc.	6.63-10.63	10.00
TOG	Tristar Oil & Gas Inc.	8.28-14.47	12.67
TXX	Tirex Resources Ltd.	0.90-3.49	3.32
VNP	5N Plus Inc.	3.90-12.25	12.14





Not only is Canada's French province richly endowed with minerals, the government has provided attractive incentives for explorers.

# Exploring Québec

by Brian O'Hara

Mining exploration is booming in Québec. Jean Pierre Thomassin, directeur general de l'Association de l'exploration minière du Québec (AMEQ) states, "Mining exploration in Quebec has experienced incredible growth this past year. We were expecting about \$300 million in exploration expenditures for 2007 at the beginning of the year and just 12 months later, I would not be surprised if the 2007 total will be closer to \$350 million."

Thomassin cited Québec's favourable ranking in the Fraser Survey on Mining Exploration and, more specifically, flow-through tax credits and other very favourable tax incentives for the success of Québec mining exploration. The province offers a unique tax credit for mining exploration which can result in the net cost of that investment to the shareholder could be approximately 37% of the total investment after the various tax credits are accounted for the cost to shareholders

of a mere \$0.37 for each \$1.00 spent on exploration.

According to Thomassin, there is tremendous geological potential in Québec – for example, the Ungava region in far northern Québec. Even with the Raglan Mine operated by Xstrata and the nearby advanced project of Canadian Royalties, "we have only scratched the surface for mining exploration potential in the Ungava region."

There is a large demand for specialized services such as drillers, geologists, geophysics technicians, as well as helicopters. Thomassin has heard of companies booking services up to one year in advance. David McDonald, president of Typhoon Explorations, suggests that it is essential to book field services in advance. He normally does his bookings at least three months in advance.

Many people are familiar with the gold projects in the Val-d'Or area of the Abitibi region. Conventional wisdom for the Val-

d'Or Gold Mining Camp is to "drill for structure and mine for grade" according to David Rigg, president of Alexis Minerals. These vein-type gold deposits are difficult to evaluate. Sometimes a vein will produce gold in one stope and at a different level that same vein will have no gold. Historically, mines have dealt with this by having two years of developed ore.

Below are updates on a number of Québec exploration and mining projects. Our apologies to those companies we couldn't fit in.

**Abcourt Mines Inc.** [ABI-TSXV; ISIN-Frankfurt] is focusing on two former producers, the Abcourt-Barvue Silver-Zinc Mine and the Elder Gold Mine. The Abcourt-Barvue Mine is located at Barraute, 60 kilometres north of Val-d'Or. The project has proven reserves (both open pit and underground) of 6.5 million tonnes grading 55.6 grams silver/tonne and 2.95% zinc. Abcourt



is purchasing mill equipment to construct an 1,800 tpd mill on site which will be assembled starting in May. The Elder gold property 10 kilometres from Rouyn-Noranda has 804,000 tons of measured and indicated resources grading 0.189 oz. gold/ton. Additional drilling is planned to increase resources.

**Alexandria Minerals Corp.** [AZX-TSXV] has an option with Teck Cominco Ltd. [TCK-TSX] to acquire 50% of 10 properties in the Val-d'Or Mining District by spending \$3 million in exploration work over three years. The most promising project is the Orenada Project which has been previously explored by former owner Aur Resources with historic (non compliant NI 43-101) resources of 2.1 million tons grading 0.043 oz. gold/ton. Alexandria will be completing 20,000 metres of drilling in 2008 with two drill rigs – one working mainly on the Orenada Project. The best drill result released January 9, 2008 was 4.07 grams gold/tonne over 8.65 metres.

**Alexis Minerals Corp.** [AMC-TSXV] has two advanced gold projects: the Lac Pelletier project near Rouyn-Noranda and the Lac Herbin Project near Val-d'Or with the nearby 1,400 tpd Aurbel gold mill. Alexis has a 50% interest with the other 50% held by Xstrata Copper in 786 square kilometres of exploration properties in the Rouyn-Noranda area. This comprises almost all of the properties of the former Noranda Inc. which entered into a joint venture with Alexis in 2004. The Alexis/Xstrata joint venture has planned a \$1.5 million base metal exploration program for 2008 in the Rouyn-Noranda Camp.

Alexis has completed a resource calculation at its Lac Herbin Project near Val-d'Or based on 30,000 metres of drilling. This project has measured and indicated resources of 894,000 tonnes grading 6.98 grams gold/tonne and inferred resources of 422,000 tonnes grading 5.85 grams/tonne. Alexis is

LEFT PAGE: Gordie McDonald, geological technician, rear, Robert Gagnon, P.Geo., independent consultant, middle, geological technician Christian Letendre, in the front examining an outcrop at the Côte Nord uranium property located 32 kilometres east of Havre-Saint-Pierre, on Québec's Lower North Shore. Photo courtesy Typhoon Exploration Inc.



## ENVIRONMENTAL RECLAMATION

Mining exploration is about raising money and developing projects. Many of the companies described have been successful in both raising money and developing projects in Québec. However, one mining exploration executive received an Environmental Excellence in Exploration award from the PDAC for raising money and not one cent will be spent on geological field exploration. Fonds Restor-Action Nunavik (FRAN) is a Québec-based initiative that is raising funds for the remediation and restoration of abandoned exploration sites in the Nunavik Region of the province.

André Gaumond, president of Virginia Mines, and his wife were watching a television program on CBC which showed the 'hundreds of abandoned exploration camps which are an environmental hazard.' In one week, Gaumond arranged a commitment from the Québec Ministry of Natural Resources to match private industry funding \$2 for each \$1 raised for this cleanup and had private industry commitments of \$500,000 which increased quickly to \$1.5 million in the following weeks. This resulted in a total of \$4.5 million being raised for the cleanup. Gaumond showed in a tangible manner how "the present generation of mining developers and exploration professionals are taking seriously the responsibility for social and environmental affairs." In some cases, these drilling sites are more than 50 years old.

While most of them are abandoned drilling camps, there are some abandoned outfitter camps, and even some government and First Nations camps. Generally the environmental issues consist of fuel, oil barrels, provisions and small buildings. Says Gaumond, "We are not looking at who is responsible for the past, but instead looking to the future."

Makivik Corp., the development corporation responsible for managing the heritage funds of the Inuit of Nunavik, provided for in the James Bay and Northern Quebec Agreement (JBNQA), is also providing \$200,000 in contributions of services. They are also supervising the First Nations people cleaning up the sites. In some cases, it requires towing fuel barrels out with a Skidoo, or sometimes a boat picking them up by the shoreline and, in some cases, a helicopter or plane is needed. Makivik is ensuring that the dollars are well spent.

This is an exciting example of an industry initiative combined with government money and managed by a First Nation company to benefit society at large as well as making up for mistakes made by the previous generation of exploration companies.



planning 40,000 to 50,000 metres of underground drilling in 2008.

Alexis' Lac Pelletier Project has measured and indicated resources of 1.7 million tonnes grading 6.05 grams gold/tonne and 490,000 tonnes of inferred resources grading 6.05 grams/tonne. Work is ongoing to bring this project into production. In January 2008, the company announced completion of bulk sampling for a total of 46,410 tonnes processed, yielding 6,732 ounces of gold. These results are encouraging and will have a positive impact on a feasibility study for production. Upon reaching commercial production, **Thundermin Resources Inc.** [THR-TSXV] will be entitled to a 2.5% NSR on any production from the Lac Pelletier property.

**Alto Ventures Ltd** [ATV-TSXV] is finalizing the acquisition of a 100% interest in the Despinassy Project 75 kilometres northeast of Val-d'Or. The project has been explored with 10,400 metres of drilling



to provide indicated resources of 167,000 tonnes grading 6.88 grams gold/tonne, plus 445,000 tonnes of inferred resources grading 4.46 grams/tonne. The mineral deposit is open along strike and to depth.

Two years ago I toured the Val-d'Or operations of **Agnico-Eagle Mines Ltd.** [AEM-TSX, NY; AE9-Frankfurt]. For investors, geologists and mine developers, the area around Val-d'Or is the heartland of gold mining. Agnico-Eagle has been able to attract many technical specialists

TOP: Eira Thomas, CEO, Stornoway Diamond Corp., at a recent presentation in Vancouver with a display of diamonds from the Foxtrot Project in the Otish Mountains, Québec. Photo by Ellsworth Dickson.

LEFT: Some of the many diamonds recovered by Stornoway Diamond Corp. from the Foxtrot Project. Photo by Ellsworth Dickson

and miners because it is a company with a long-term future. According to David Smith, VP, investor relations, Val-d'Or is a great place for miners – some families of miners go back two and three generations and still prefer to live in Val-d'Or.

Agnico-Eagle has managed impressive accomplishments in the last year with the construction of the Lapa Project, the Goldex Project and the LaRonde Extension, as well as the acquisition of the Meadowbank Project. The company is





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targeting to increase gold production from 240,000 ounces in 2007 (plus by-products of copper, zinc and lead at LaRonde) to 1.2 million ounces in 2010.

Special attention should be paid to the Goldex operation in Val-d'Or. The Goldex Extension Zone was drilled in 1997 and was viewed a marginal ore deposit and consideration was given to mining the higher grade veins. However, with Agnico-Eagle's experience in mining high tonnage underground ore from LaRonde, it was decided to develop the Goldex Project as a bulk tonnage operation. This change required a higher cost to develop the project, but once the mining starts, it will be an "underground transportation project with large scooptrams and large trucks" according to Smith and will result in a low cash mining cost expected to be about US \$228 cash cost/ounce of gold. These changes resulted in a formerly marginal deposit (at US \$450/oz. gold price) becoming profitable – without taking into account the gold price which has doubled. The Goldex Project has 22.8 million tonnes of probable reserves grading 2.29 grams gold/tonne. This project will have an estimated cost of \$135 million and is expected to produce about 170,000 ounces of gold per year starting later this year.

**Aurizon Mines Ltd.** [ARZ-TSX; AZK-AMEX] received the ultimate accolade in peer recognition in being awarded the "Company of the Year" award for 2007 by the Association de L'Exploration Minière du Québec and Quebec Ministry of Natural Resources. This was received for bringing into commercial production the Casa Berardi Mine closed in 1997. The mine is located 95 kilometres north of La Sarre, which is about 130 kilometres north of Val-d'Or.

The mine produced 159,000 ounces of gold during 2007, its first year of commercial production and is targeting production of 170,000 -180,000 ounces per year. Aurizon is planning 70,000 metres of drilling to expand the reserves. **Lake Shore Gold Corp.** [LSG-TSX] is earning in a 50% share of the property adjoining the Casa Berardi Mine by spending \$5 million

on exploration over the next five years.

Aurizon is doing a 26,000-metre drilling program on its Joanna Project covering 2,608 hectares located 20 kilometres east of Rouyn-Noranda. This project has indicated resources estimated at 11.3 million tonnes grading 1.7 grams gold/tonne and inferred resources of 28.6 million tonnes grading 1.6 grams/tonne.

**Azimut Exploration Inc.** [AZM-TSXV] has an interesting strategy of selecting and acquiring exploration properties in Québec in order to negotiate joint ventures. Azimut has 18 projects with joint partners that pay for exploration to earn an interest. A total of \$12 million in exploration has been committed by Azimut's partners for 2008.

**Beaufield Resources Inc.** [BFD-TSXV] is conducting a 3,200-metre diamond drilling program on its 100%-owned Tortigny base metal deposit, located within the Troilus properties about 100 kilometres north of Chibougamau. The intent of the program is to undertake an evaluation and to expand the Tortigny massive sulphide base metal deposit.

**Cadiscor Resources Ltd.** [CAO-TSXV; DQN-Frankfurt] recently reported drill hole BD-07-157 intersected 5.26 grams gold/tonne over 3.25 metres, including 7.71 grams/tonne over 2.0 metres at its Discovery property 35 kilometres northwest of Lebel-sur-Quévillon.

**Canadian Royalties Inc.** [CZZ-TSX] is developing the Nunavik Nickel Project 20 kilometres south of the Xstrata Nickel Raglan mine. The project consists of three deposits, the Mesamax, Expo and Ivakkak which have proven and probable reserves of 11.2 million tonnes grading 0.97% nickel, 1.13% copper, 0.05% cobalt, 0.45 grams platinum/tonne, 0.45 grams palladium/tonne and 0.10 grams gold/tonne. In addition, there are 17.3 million tonnes of indicated resources grading 0.93% nickel, 1.14% copper, 0.05% cobalt, 0.54 grams platinum/tonne, 2.17 grams palladium/tonne and 0.15 grams gold/tonne. Canadian Royalties is continuing to develop more resources in the nearby Mequillon and Allamag deposits. The company produced a bankable feasibility study in June

2007. It has moved quickly to order mining equipment and construction camp equipment, some of which has already been delivered onsite. The expected cost of the project is \$465 million.

**Century Mining Corp.** [CMM-TSXV] is operating the Sigma-Lamaque Project in Val-d'Or. It consists of a 5,000 tonne-per-day (tpd) mill, an open pit operation at the Sigma Mine, which was closed in November of 2007, and the Lamaque underground operation, together with 12.6 square kilometres of exploration properties in close proximity. Century has the proven and probable reserves of 7.7 million tonnes grading 4.56 grams gold/tonne, measured and indicated resources of 3.6 million tonnes grading 5.27 grams/tonne and 17.8 million tonnes of inferred resources grading 4.83 grams/tonne. Century is developing the Lamaque underground mine and will be starting underground production early in 2008, leading to an expected production rate of 3,000 tpd in 2011 with a production target of 140-160,000 ounces of gold per year at a cash cost estimated at US \$400-425/oz. gold.

**Dios Exploration** [DOS-TSXV] is concentrating on both diamond and uranium exploration mainly in the Otish Mountains area. Their Hotish property is adjacent to both the Strateco uranium property and the Cameco property. Their 33 Carats Project is about 340 kilometres north of Chibougamau and is adjacent to both the Storoway-Soquem Foxtrot property and the Majescor Portage property. Their Chibouki Project is located about 40 kilometres northeast of Chibougamau

**Ditem Explorations Inc.** [DIT-TSXV] has properties in the Otish Mountains area with potential for both diamond and uranium prospects. It has 491 claims in the Beaver Lake area and Beaver Lake South. In addition, it holds a 2% net smelter return on the Matoush property being explored by Strateco Resources.

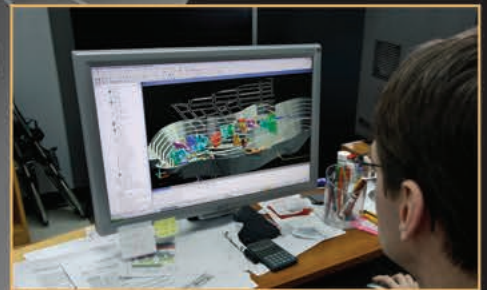
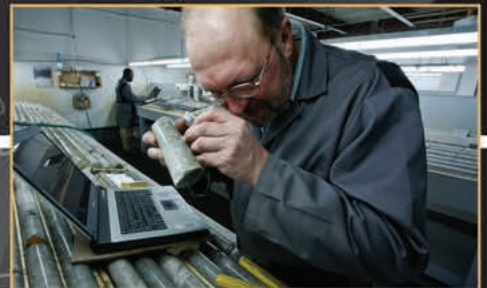
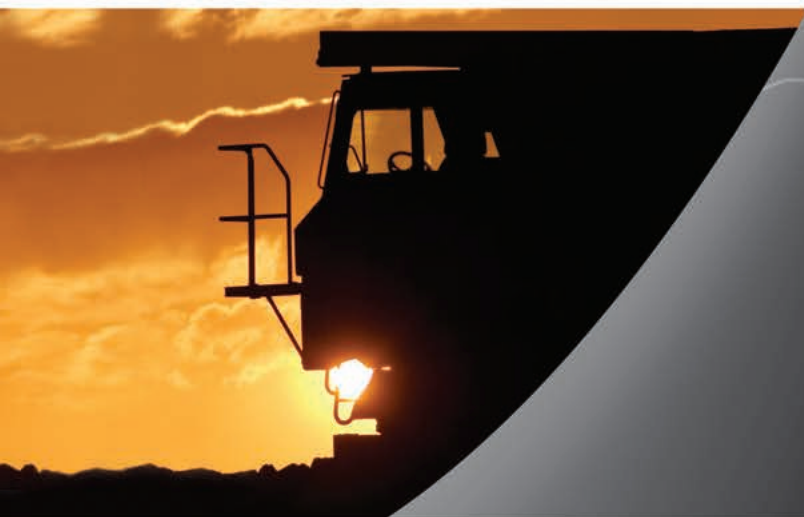
**Eastmain Resources Inc.** [ER-TSX] has several wholly owned projects. The flagship property is the 200 square kilometre Clearwater Project in the James Bay area, five kilometres from the Hydro Quebec EM-1 power generation project. On the



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Clearwater Project, the Eau Claire deposit has one million tonnes of indicated resources grading 9.45 grams gold/tonne and inferred resources of 6.90 grams/tonne. A scoping study is planned for the Eau Claire as well as definition of other targets on the Clearwater property.

**Everton Resources Inc.** [EVR-TSXV; ERV-Frankfurt] and Azimut Exploration are carrying out a winter drill program based on the results of exploration work completed in 2007 on the Opinaca A and B properties in the James Bay region of Quebec.

**Golden Valley Mines Ltd.** [GZZ-TSXV] has an active Abitibi grassroots exploration program covering 29 targets on seven properties with a budget of \$1.5 million planned for 2008. In addition, it is earning into a 60% interest with the possibility of increasing it to an 85% interest from **Sirios Resources Inc.** [SOI-TSXV] on the Cheechoo Project. The 534 square kilometre project is in the James Bay area, 15 kilometres from Goldcorp's Éléonore property. The Cheechoo Project has some high grade outcrop occurrences, including 209.2 grams gold/tonne.

**Goldbrook Ventures Inc.** [GBK-TSXV; GVE-Frankfurt] is exploring one of the most extensive land holdings covering 704,000 acres in the Raglan District of far northern Quebec (Nunavik) in the vicinity of the Xstrata Raglan Mine and the advanced Canadian Royalties projects. In 2007, 20,500 metres were drilled with assay results still pending and releases will be made as they are available. The best intercept in a previous drill program was a 49.3 metres section grading 1.35% nickel, 0.61% copper and 2.88 grams platinum group metals/tonne.

**Goldcorp Inc.** [G-TSXV; GG-NY] acquired the Éléonore property from Virginia Gold Mines in March of 2006 which hosts the Roberto deposit. It is located in the eastern part of the Opinaca reservoir, about 190 kilometres east of the Cree community of Wemindji and 320 kilometres north of Matagami in the James Bay region. This deposit has 1.8 million indicated and 900,000 inferred ounces of

gold using a cut-off grade of 3.5 grams gold/tonne. A feasibility study is expected late 2008 with production possibly starting late 2010.

Goldcorp and Azimut have a joint venture with Eastmain having the right to earn a 1/3 interest in the Éléonore South property by completing \$4 million in exploration over four years. Goldcorp, in conjunction with this joint venture, increased its ownership of Eastmain to 9.9%.

**Majescor Resources Inc.** [MAJ-TSXV] recently announced a 17-metre drill intersection grading 0.20 U<sub>3</sub>O<sub>8</sub> at a depth of 49 metres on its Lac Mantouchiche uranium showing in the Mistassini in the Otish Mountains. Strateco Resources has an option to earn 60% interest in the uranium rights on this property by spending \$1.3 million over three years. Majescor can acquire up to 65% interest on two projects with Azimut Exploration in the Ungava Bay region. The South Rae property covering 945 square kilometres has more than 20 uranium zones with occurrences grading up to 0.59% U<sub>3</sub>O<sub>8</sub> on initial reconnaissance and requires Majescor to spend \$4.6 million over five years. The West Minto Uranium Project covers 416 square kilometres and is located in west-central Nunavik which requires Majescor to spend \$3.8 million over five years.

**Maudore Minerals Ltd.** [MAO-TSXV] is developing the 100%-owned Comtois Project 15 kilometres northwest of Lebel-sur-Quévillon where there are drill indicated inferred resources of 808,000 tonnes averaging 20.2 grams gold/tonne, containing 524,800 ounces.

**Metanor Resources Inc.** [MTO-TSXV] owns the Bachelor Lake property located 3.5 kilometres from Desmaraisville, 225 kilometres northeast of Val-d'Or. It consists of mine infrastructure, a 500 tpd mill and a 562-metre shaft (dewatered in 2004). Bachelor Lake has measured and indicated resources of 841,000 tonnes grading 7.79 grams gold/tonne and inferred resources of 426,000 tons grading 6.52 grams/tonne.

The Barry 1 Project, located 65 kilometres

southeast of the Bachelor Lake property, is an open pit project and has indicated resources of 415,000 tonnes grading 4.05 grams gold/tonne and inferred resources of 1.1 million tonnes grading 3.78 grams/tonne. Ore from the Barry 1 Project would be trucked to the Bachelor Lake mill.

**Metco Resources Inc.** [MKO-TSXV] has released a NI 43-101 compliant resource update on the Orphee deposit, located in the Lebel-sur-Quévillon Camp. Prepared by Scott Wilson Roscoe Postle Associates Inc., the update forms an integral part of the Orphee prefeasibility study being prepared by Scott Wilson RPA. The Orphee deposit is held in a 50/50 joint venture with **Breakwater Resources Ltd.** [BWR-TSX]. Indicated resources stand at 607,000 tonnes grading 6.6% zinc, 0.44% copper, 14 grams silver/tonne and 0.12 grams gold/tonne. Inferred resources are 276,000 tonnes of 7.0% zinc, 0.79% copper, 13 grams silver/tonne and 0.08 grams gold/tonne.

**Murgor Resources Inc.** [MUG-TSXV] holds a number of projects in Québec, including the Barry United (gold), Windfall (gold), Eagle River (copper-gold-zinc), Fancamp (gold), Nelligan (gold), Benoit (gold-copper), and La Treve (copper-nickel-platinum group elements).

**Niogold Mining Corp.** [NOX-TSXV] holds 70 square kilometres in the Malarctic Gold Camp about 25 kilometres west of Val-d'Or. Their flagship project is the Marban block consisting of three former producing mines. The Marban Project has 845,000 tonnes of indicated resources grading 2.66 grams gold/tonne and 3.0 million tonnes grading 2.72 grams/tonne. A 40,000-metre drill program is progressing with about 12,890 metres completed so far.

**Northern Abitibi Mining Corp.** [NAI-TSXV] has a 50% interest together with **Vior Inc.** [VIO-TSXV] and Soquem each holding 25% on the Douay Northwest joint venture which has returned 10.63 grams gold/tonne over 4.9 metres. The project is 50 kilometres southwest of Matagami, adjacent to Vior's Douay project, a 1.88 million ounce gold project in the prefeasibility stage.

**Northern Star Mining Corp.** [NSM-

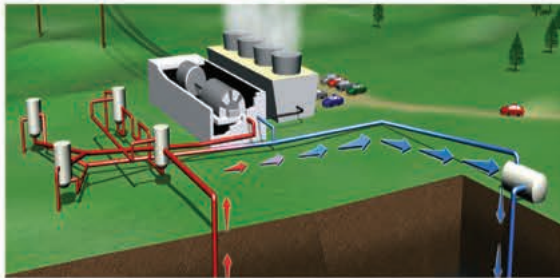


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TSXV] See Northern Star story page 49.

**NWT Uranium Corp.** [NWT-TSXV; NWURF-OTCBB] can acquire up to 65% interest from Azimut Exploration in the North Rae Uranium Project, where results to date have revealed the potential for a new uranium district. NWT also has an option to acquire up to 65% ownership in the Daniel Lake Uranium Project, which neighbours North Rae. North Rae and Daniel Lake cover a total area of more than 300,000 acres in the Ungava Bay region. **NWT and Nu-Mex Uranium Corp.** [NUMXN-OTCBB] have cancelled their planned merger.

**Osisko Exploration Ltée.** [OSK-TSXV; EWX-Frankfurt] is winner of the 2008 PDAC Prospector of the Year award for their Canadian Malarctic Project located in Malarctic about 25 kilometres east of Val-d'Or. This is the former Canadian Malarctic Mine which operated from 1935 to 1965 and produced about 1 million ounces of gold. Osisko took over the property in December 2004 and, since then, has developed an inferred resource estimate of 286.2 million tonnes grading 0.92 grams gold/tonne using a cut-off grade of 0.4 grams/tonne of gold for a total of about 8.4 million ounces gold. This resource estimate is derived from historical drilling of 244,000 metres, together with 102 metres done by Osisko up to May 2007. Currently, Osisko has 15 drill rigs working on this project and is expecting to drill about 15,000 metres per month.

According to Robert Wares, executive vice president, the Malarctic Project is not controlled by a geologic vein structure which could have important consequences for gold exploration in Quebec and Ontario. Almost all gold mined in Ontario and Quebec is derived from vein structures. Research is taking place on the Malarctic Project at McGill University to determine if it can be classified as porphyry or if it is a one of a kind deposit.

Resources are close to surface and amenable to open pit mining with a strip ratio estimated at around 2:1. The open pit mine poses another challenge since there are

about 205 houses and five institutional buildings that will have to be moved for the proposed open pit according to Sean Roosen, president of Osisko. Roosen started the process of community consultation with the town council in September of 2005 after they received the results of their initial drilling. Osisko is proposing to either buy houses or move houses to another area at the north end of town. The people of Malarctic, some of whom currently work in the mining industry, generally support Osisko for this large project. A preliminary assessment of the project indicates favourable economics for a 50,000 – 55,000 tpd mill, which would be one of the largest construction projects in Northern Quebec with an estimated \$500 million plus price tag.

**Queenston Mining Inc.** [QMI-TSX QMI-BERLIN] owns two gold projects adjacent to the LaRonde and Lapa gold deposits operated by Agnico Eagle. Queenston's 100%-owned Pandora Project has historic (non-compliant NI 43-101) inferred resources of 2.33 million tonnes grading 4.5 grams gold/tonne. Queenston's 50/50 joint venture with **Globex Mining Enterprises Inc.** [GMX-TSX; G1M-Frankfurt] on the Wood-Pandora Project is targeting the Ironwood gold discovery which previously returned 22.6 grams gold/tonne over 22.9 metres.

**Radisson Mining Resources Inc.** [RDS-TSXV] is continuing to develop the O'Brien/Kewagama Project located just north of Cadillac, adjacent to the Wood-Pandora Project (see above). The 36 East Zone near the O'Brien Mine has indicated resources of 270,000 tons with an uncut grade of 0.56 oz. gold/ton. (0.36 oz/ton cut). Their latest drill results released January 18, 2008 confirmed the high-grade nature of the gold with the best results being 4.3 feet grading 0.28 oz/ton.

**Stornoway Diamond Corp.** [SWY-TSX] (50%) and Soquem (50%), a Québec government agency, have a joint venture on their flagship property, the 200,000-hectare Foxtrot property in the Otish Mountains of north-central Quebec. The project was discovered in 2001, the result of a grassroots exploration program started

originally in 1996 as a 50/50 joint venture between Soquem and Ashton Mining (later acquired by Stornoway).

Ongoing exploration on this project continues to both prove up the resources of the Renard diamondiferous kimberlite cluster and add new resources from the Lynx Dyke and the Hibou Dyke. There are nine kimberlites and extensive bulk sampling has been done on three of them. Bulk sampling has been completed on Renard 2, 3 and 4 kimberlites for a total of 6,036 tonnes, yielding 6,496.66 carats or an average diamond content of 108 carats per hundred tonnes (cpht). The highest diamond content of 139 cpht was in Renard 3, while that of Renard 4 was 133 cpht, and Renard 2 had two different samples one of 48 cpht and another of 111 cpht.

The bulk sample of the 6,496.96 carats of the Renard kimberlites was evaluated by WWW International Diamond Consultants. The Renard 2 and 3 kimberlite diamonds were evaluated at a diamond price estimate of US \$109/carats, while the diamonds of Renard 4 kimberlite were evaluated at US \$69/carats.

Results of the bulk sampling of the Hibou Dyke released January 28, 2008 processed 31.4 tonnes yielding 39.54 carats or 126 cpht. The bulk sampling results have provided the encouragement to proceed with the final phase of a pre-feasibility study that will include the development of a NI 43-101 compliant resource, mine and plant design, cost estimates and a financial model.

Eira Thomas, CEO of Stornoway states, "the partners (Stornoway and Soquem) are optimistic that a mineable resource can be established at the Foxtrot property that careful management and infrastructure support, will allow the development of Québec's first diamond mine."

If and when the diamonds from the Foxtrot Project are mined, they will not have to be sent far for cutting. Matane, a town of 15,000 located on the south shore of the St. Lawrence River, about 650 kilometres east of Montreal, is known for the fishery and Matane shrimp. However,



Matane, being hungry for economic development and diversification, has developed a diamond cutting training course at the Matane College and sought out both government support and diamond cutting companies to start up. Diarough, one of the largest diamond cutting companies in the world with a head office in Belgium, set up their diamond cutting plant in Matane in 2005. This plant is cutting only gem diamonds of one carat or larger. The Diarough of Canada plant in Matane is in the process of expanding from 36 cutting jobs to 50 jobs and is installing automated equipment to increase the diamond cutting capacity from 10,000 to 30,000 carats/year.

**Stratco Resources Inc.** [RSC-TSX] has two advanced uranium projects in northern Québec. The Matoush Project is an advanced uranium exploration projects with one of the highest uranium grades outside of the Athabaska Basin in Saskatchewan. Stratco has indicated resources of 201,000 tonnes grading 0.79%  $U_3O_8$ , and inferred resources of 65,000 tonnes grading 0.43%  $U_3O_8$  for a resource total 4 million pounds of uranium. Stratco has spent \$20 million in 2007 and expects to have another \$20 million exploration program in 2008, according to Guy Hebert, president. Stratco would like to develop a total of 20 million pounds of uranium resources which could happen quickly with the large exploration program planned.

**Tres-Or Resources Ltd.** [TRS-TSXV] has been exploring its Notre Dame du Nord Project near the Québec-Ontario border about 26 kilometres east of New Liskeard. This project has five kimberlite pipes and forms part of the New Liskeard kimberlite field. Ground work is continuing to delineate the kimberlite discoveries and define targets for a potential for gold and base metals. Drill results released in December of 2007 reported a intersection of 2.0% zinc over 14.6 metres at a depth of 114.3 metres.

**Typhoon Exploration Inc.** [TOO-TSXV] has been exploring its 100%-owned Fayolle Project and the adjacent

Aiguebelle-Goldfields property, 51%-optioned from Agnico Eagle, located 35 kilometres northeast of Rouyn-Noranda. Typhoon is planning a \$2 million exploration program this year that includes about 10,000 metres of drilling. The Fayolle currently has indicated resources of 848,000 tonnes grading 1.4 grams gold/tonne and 6.5 million tonnes grading 0.7 grams gold/tonne. On February 12, 2008, results from drill hole FA-07-24 revealed two zones. The first zone graded 13.64 grams gold/tonne over 12 metres, including 74.95 grams/tonne over 1.0 metre, and the second zone graded 4.33 grams/tonne over 40 metres, including 112.18 grams/tonne over 1 metre. Mineralization is known to a depth of 250 metres.

Typhoon is also exploring the Côte Nord uranium property 32 kilometres east of Havre-Saint-Pierre, Québec.

**Virginia Mines Inc.** [VGQ-TSX] has been exploring in the James Bay area of northern Quebec since 1993, developing a large portfolio of exploration projects and their own specialized knowledge of this region. Virginia is best known for its discovery of the Éléonore property and its subsequent sale to Goldcorp in March of 2006 for an estimated \$500 million. Virginia has a 2% NSR in the Éléonore property.

Virginia's most important property is the Coulon Joint Venture 15 kilometres north of the Fontanges airport in mid-north Quebec. **Breakwater Resources Ltd.** [BWR-TSX] has an option to acquire a 50% in the Coulon property which has five known lenses of massive sulphides, together with mineralized showings along a distance of 90 kilometres. Drill results released January 16, 2008 show Lens 9-25 with 4.05% zinc, 7.68% copper, 118.7 grams silver/tonne over 3.6 metres, while Lens 8 shows values of 2.8% zinc, 1.22% copper, and 26.7 grams silver/tonne over 20.15 metres. The joint venture partners are planning a \$20 million exploration program for 2008.

**Wesdome Gold Mines Ltd.** [WDO-TSX] acquired the entire Kiena Mine complex as well as the Shawkey and McKenzie Break

properties in 2003. Combined with the Wesdome and Siscoe properties, Wesdome has consolidated a dominant land position in the Val d'Or Camp. The Kiena complex includes a 920-metre shaft, a 2,000 tpd mill and tailings facilities and extensive surface and underground infrastructure. All are permitted. The land position includes eight former underground operations which have produced over 2.5 million ounces of gold and which for the first time are all under one corporate roof.

**X-Ore Resources Inc.** [XOR-TSXV] has received the latest results from **First Gold Exploration Inc.** [EFG-TSXV] from the diamond drilling program on the Croinor property 75 kilometres east of Val d'Or. Assays include 4.35 grams gold/tonne over 3.0 metres, 4.27 grams/tonne over 2.0 metres and 2.74 grams/tonne over 0.7 metres in hole CR07-339.

**Xstrata Nickel** operates three underground mines, an open pit mine and a 3,000 tpd mill at Raglan in the northern extremity of Québec in the Ungava Peninsula. It has proven ore reserves of 5.8 million tonnes grading 2.68% nickel and 0.71% copper, 8.9 million tonnes grading 2.96% nickel and 0.82% copper and an additional 25.8 million tonnes of measured, indicated and inferred resources at a similar grade. There are additional valuable by-products of cobalt, platinum, palladium. Mining production is 1 million tonnes per year.

**Yorbeau Resources Inc.'s** [YRB.A-TSX] property, four kilometres from Rouyn-Noranda, consists of 81 claims covering 2,700 hectares. Their Rouyn Project consists of an office and maintenance building together with a shaft developed to 250 metres, and a 1,142-metre ramp, both of which are flooded. Historic resources (non NI 43-101 compliant) indicated 2 million tons grading 0.165 oz. gold/ton. Their best drill results in 2007 were 5.81 grams gold/tonne over 2 metres in the Cinderella Block and a 5.3 grams/tonne over 2 metres in the Augmitto Block. Yorbeau is planning a drilling program to validate the historic resources and explore the eastern flank of the Augmitto Block. ■

# BIGGER is BETTER

Yellowhead Mining is developing the huge Harper Creek copper-gold-silver project north of Kamloops, British Columbia

by Ellsworth Dickson

Greg Hawkins, PGeo., MSc., has been exploring for minerals for over 30 years both in Canada and around the world. He is a director of several publicly traded mining companies as well as a founder and Executive Director of CME & Company, an international consultancy and contracting firm. As Chairman of Yellowhead Mining Inc., currently private, Hawkins has assembled a board of directors with a wealth of experience in mineral exploration and financing.

This experience will be needed to guide the large-scale Harper Creek Project to production. The project is located approximately 90 kilometres north-northeast of Kamloops in south-central British Columbia. Yellowhead has a 100% interest in the 35,439-hectare property, parts of which are subject to a capped royalty of \$2.5 million.

Not a new discovery, the Harper Creek deposit was discovered in 1966 by Noranda Exploration and US Steel who drilled 147 holes totaling 24,007 metres. In 1996, American Comstock drilled 2,847 metres in eight holes. Yellowhead has been fortunate to acquire all this valuable drilling data which it has digitized as well as drill cores from about 100 of the historical holes.

Through in-fill and step-out drilling, Yellowhead plans to develop a mineable resource which is envisaged as both an open pit and underground mine. While the known mineral deposit is gigantic, airborne geophysics and soil sampling have identified numerous additional exploration targets which could add to the present resource estimate.

The Harper Creek deposit is an extensive volcanogenic sulphide system with a min-

eralized envelope of over 2.0 kilometres along strike, over 2.0 kilometres down dip with a 1.0-kilometre thickness. This is the largest advanced 'greenfield' volcanogenic sulphide project in Canada. The deposit remains open along strike and down dip. A NI 43-101 compliant resource estimate has pegged an indicated resource of 450.9 million tonnes grading 0.32% copper and an inferred resource of 142.2 million tonnes grading 0.33% copper, containing 3.2 billion pounds and 1 billion pounds of copper, respectively.

The mineralization is tabular-shaped, strikes east-west, and gently dips (15-25%) to the north with a number of high-grade copper zones that persist to depth within a stringer (many small veins) zone. The deposit is hosted in the Eagle Bay Assemblage which is comprised of the



An aerial view of the Harper Creek Project.  
Photo by Ellsworth Dickson.



Lower Paleozoic Greenstone Belt of intensely altered sequences of black shales, mudstones, mafic and felsic flows and tuffs.

In late 2005 and 2006, Yellowhead Mining re-logged and re-assayed historical drill core recovered from the project site. Starting in spring 2006, the company completed a 1,000 line-kilometre airborne geophysical survey that identified several high-priority targets for further exploration. In addition, in 2006, a 12-hole, 4,077-metre in-fill drill program intersected several high-grade zones. At least 10 zones have now been identified with both open pit and underground potential.

During 2007, Yellowhead Mining completed a drill program of 26 holes totaling 11,688 metres. The first six of the holes intersected multiple mineralized horizons, including zones of massive sulphides. A 25,000-metre drill program is planned for 2008.

The mining method will depend on the grade and width of mineralization. Higher-grade open pit, starter pit material has returned drill intercepts grading: 41.4 metres of 0.67% copper, 2.5 grams silver/tonne and 0.15 grams gold/tonne. Mid-grade, open pit bulk tonnage material in the West Zone returned 106.7 metres of 0.41% copper, 1.5 grams silver/tonne and 0.07 grams gold/tonne. Large widths of lower-grade, open pit material in the East Zone returned 283.3 metres of 0.31% copper, 1.1 grams silver/tonne and 0.042 grams gold/tonne. Potential future

Greg Hawkins, chairman of Yellowhead Mining, left, and Harvey McLeod, P.Eng., consultant with Klohn Crippen Berger, study a project map at the Yellowhead Mining exploration camp. Photo by Ellsworth Dickson.

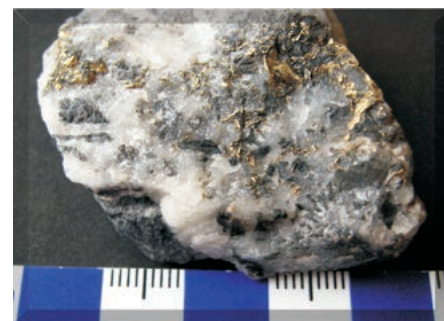


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underground tonnage material returned 2.9 metres of 3.34% copper, 13.9 grams silver/tonne and 0.15 grams gold/tonne.

There are appreciable quantities of recoverable copper, gold and silver. Metallurgical testing has provided a cleaner-stage concentrate grading 28.8% copper, 4.75 grams gold/tonne and 91.5 grams silver/tonne, with corresponding metal recoveries of 88%, 65% and 34%.

Initial studies have indicated a pit-optimized resource of 354 million tonnes (at a 0.2% copper cut-off and \$1.80 per pound copper) grading 0.33% copper with a stripping ratio of 1.43 over a 20-year mine life. These studies were based on a mining cost of ore and waste of CDN \$1.34/tonne and milling costs (including general/administration) of CDN \$4.93/tonne. With a 50,000 tonne per day mill, capital costs have been estimated to be CDN \$450 million. This low cost is a result of the excellent infrastructure and the very low cost waste and tailings facility identified within



Examining the historical drill core from the Harper Creek Project. Left to right, Harvey McLeod, Dr. Sergei Soloviev, P.Geo., CME Consultants, Greg Hawkins, and Eddie Mills of CME Ghana Ltd. Photo by Ellsworth Dickson.



## Developing a World Class Molybdenum Project THE RED BIRD PROJECT

- West-central British Columbia
- Moly-copper-rhenium porphyry
- Updated NI 43-101 including 2006 drill program just out
- Total of 113.8 million tonnes including 43.3 million tonnes indicated
- Contained molybdenum now 151.3 million pounds an increase of 40% above 2005
- Resource open on surface & to depth
- Projected tonnage would support 30+ year mine life
- Results of 2007 drill program due out soon
- Sprott Asset Management owns 18% of outstanding shares
- Pinetree Capital owns 11%



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**TSX-V: TCR**

three kilometers of the deposit. Scenarios for 70,000 and 90,000 tonnes per day are under consideration.

At the present time, a scoping study is near completion with a bankable feasibility study planned commencing first quarter 2008. This year's work is designed to expand the indicated and inferred NI 43-101 resource tonnage and upgrade the existing resource into the measured category. In addition, there will be a continuation of the metallurgical and environmental studies that began in 2007, including water quality studies. Exploration drilling will be carried out using three drill rigs to target prospective areas identified by airborne geophysics. The permitting process will also commence.

Aside from being located in a mine-friendly, politically stable province, the Harper Creek Project is situated beside a main highway with rail, power and water readily available. Kamloops is an active mining city with skilled labour and mining services.

Through three rounds of financing in 2006 and 2007, a total of \$13.6 million in private equity has been raised, sufficient for conducting the various programs at Harper Creek. In addition, the company has assembled a team to address the requirements of the local and regional First Nations.

Yellowhead Mining also plans to acquire and explore other mineral properties of merit. ■



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Shore Gold's Fort à la Corne diamond projects continue to deliver the goods

# MORE LARGE DIAMONDS RECOVERED BY SHORE GOLD

by Ellsworth Dickson

While there was no one around to witness the event, about 100 million years ago, at least 60 bodies of molten kimberlite, the host rock of diamonds, erupted violently at the earth's surface on the edge of an inland sea in what is today central Saskatchewan, Canada. These volcanic eruptions of kimberlite carried untold thousands of diamonds from deep in the earth up close to the earth's surface.

However, unlike some other diamond deposits, there were no diamond-bearing outcrops waiting for prospectors to discover. By the time modern explorers got into the hunt for diamonds, the kimberlite pipes were buried under about 100 metres of overburden (sands, gravels, etc). By analyzing the subtle clues provided by an airborne magnetic survey completed by the province of Saskatchewan, drill targets were identified. It was not until 1989 that the first kimberlite intersection was made.

Currently, **Shore Gold Inc.** [SGF-TSX] is advancing two neighbouring diamond projects in the Fort à la Corne region about 60 kilometres east of Prince Albert – the 100%-owned Star Diamond Project, and the FALC Joint Venture, which is held as to Shore Gold, 60%, and **Newmont Mining Corp.** [NMC-TSX; NEM-NY, ASX], 40%. These kimberlite bodies have proved to be the largest in the world.

Like virtually all mineral projects, drilling is a necessary exercise to prove up reserves and, to this end, 88 (1.2 metre diameter) large-diameter holes and over 230 core holes have been completed on the Star Diamond Project.

Raw diamonds recovered from the Star Diamond Project. Photo courtesy Shore Gold Inc./Black Box Images.



However, even with large-diameter drilling, the 'nugget effect' can result in inaccurate sampling since the hole could, just by chance, encounter many diamonds or maybe very few. To provide an accurate measurement of grade, more than 68,000 tonnes of bulk samples have been extracted at Star by way of a shaft and underground workings, which total about 3 kilometres, mostly on the 215 to 235-metre level.

Following this systematic data gathering, work at the Star Diamond Project has now moved to engineering studies and data analysis which are being used to calculate a NI 43-101 compliant resource estimate. This resource estimate is scheduled to be upgraded to a NI 43-101 reserve by the middle of 2008 and, upon completion of a prefeasibility study, will be followed by a bankable feasibility study by year end 2008.

Other work planned for Star this year includes geotechnical drilling of eight holes totaling 1,250 metres and condemnation drilling of five holes totaling 1,200 metres, exploration drilling of the Birchbark Kimberlite with four holes totaling 1,000 metres and exploration drilling of geophysical targets of six holes totaling 1,500 metres.

During the third quarter of 2007, the company released the final two sets of diamond results from Phase 3 of the underground bulk sampling of the Star Diamond Project. Diamonds from the two sets totaled 1,074.49 carats from 8,442.53 dry tonnes processed, for an average of 12.73 carats per hundred tonnes. In total, the three phases of underground bulk sampling were performed on the Star Kimberlite, resulting in 68,810 tonnes of kimberlite being processed that yielded 80,639 diamonds (+0.85 mm) weighing a total of 10,829 carats. An overall diamond valuation of US \$170 per carat was determined by WWW International Diamond Consultants Ltd. together with their aboriginal partners ADG through Diamonds International Canada.

At the neighbouring FALC Joint Venture, the latest (February 5, 2008)



Miners at work underground at the Star Diamond Project. Photo courtesy Shore Gold Inc./Black Box Images.





An aerial view of infrastructure at Shore Gold's Star Diamond Project in the Fort à la Corne region east of Prince Albert, Saskatchewan. Photo courtesy Shore Gold Inc./Black Box Images.

news release documents the first set of diamond results from underground bulk sampling of the Orion South Kimberlite. Diamond recoveries total 97.07 carats from 604.79 dry tonnes of processed kimberlite from two different types of kimberlite geology, namely the LJF (Late Joli Fou) and EJF2 (Early Joli Fou). A total of 786 commercial-sized diamonds (greater than 1.18 mm), collectively weighing 96.72 carats were recovered from four batches. Some large diamonds were recovered, including stones that weighed 6.31, 3.21, 1.83 and 1.60 carats. In addition, 19 diamonds totaling 0.34 carats were recovered down to 0.85 mm square mesh. The colour of 45% of the diamonds has been classified as white, with a further 17% classified as off-white. Other large diamonds were previously recovered, including a stone weighing 49.5 carats (Star), and a fancy yellow stone weighing 10.53 carats (Orion South).

Shore Gold, Inc. senior vice-president of exploration and development, George Read said, "These initial bulk sample diamond results confirm that kimberlite with elevated diamond grades (greater than 15 carats/hundred tonnes) occur at high levels in Orion South. Present estimates suggest that the three kimberlite lithologies (EJF1, EJF2 and Pense) account for a target of some 300 to 330 million tonnes of

diamondiferous kimberlite at Orion South. This estimate is conceptual in nature."

Shaft sinking by Thyssen Mining and Construction is currently underway at Orion South, which is located about three kilometres from the Star shaft. The miners are deepening the shaft by about 1.5 metres per day until they reach the total depth of 210 metres below surface. Underground bulk samples will be collected from three kimberlite lithologies: 22,500 tonnes from EJF1, 22,500 tonnes from EJF2 and 15,750 tonnes from Pense Kimberlite. Meanwhile, large-diameter drilling is underway at Orion North.

Diamonds are recovered on site at the modular dense media separation plant, after which the diamond-bearing concentrates are batch fed through an X-ray Flow-sort machine. Since diamonds fluoresce under X-rays, that method is used to produce a diamond-rich concentrate. The x-ray tailings are fed to a grease table to capture diamonds with low x-ray fluorescence. The flow-sort and grease table concentrate are sent to independent laboratories for final diamond recovery. As might be expected, Shore Gold has implemented strict security regulations to safeguard the diamonds.

Under the guidance of Ken MacNeill, president/CEO, a series of financings was completed in 2005 that raised over \$230

million. An additional \$30 million was raised in November 2007 prior to the approval of a 2008 budget of \$106.8 million. A budget of \$86.8 million has been allotted for the FALC Joint Venture (of which \$35.3 million will be funded by joint venture partner Newmont Mining Corp. Canada Limited) and \$7.9 million for the Star Diamond Project.

Shore Gold is also involved in the Buffalo Hills Diamond Project in northern Alberta and will fund \$3.5 million of the \$7 million budget for 2008. The earlier stage Buffalo Hills Project is a joint venture with **Diamondex Resources Ltd.** [DSP-TSXV]. In July 2007, Shore Gold and Diamondex acquired Stornoway Diamond Corp.'s share of this project for \$17.5 million. Shore and Diamondex each acquired a 22.5% interest, in which Encana Corp. holds a 43% interest and Pure Diamonds Exploration Inc. holds the remaining 12% interest. Shore and Diamondex, the operator, can increase their combined interest to 72.5% by spending \$15 million by April 30, 2010. Shore and Diamondex contribute funds on a 50/50 basis.

Previous exploration at Buffalo Hills discovered 38 kimberlites, of which 26 were diamondiferous. Six mini bulk samples were also carried out, with the largest bulk sample collected at the K14 kimberlite where 479 tonnes were extracted, yielding a grade of 12 carats/hundred tonnes. For 2008, the drilling program is designed to accurately define the internal geology of the kimberlites.

Shore Gold's Fort à la Corne diamond projects represent the largest diamond exploration project in the world. There are a few more challenges for the company to overcome before production can commence; however, to date, Shore Gold has successfully overcome a variety of challenges and both Fort à la Corne diamond projects continue to advance favourably. ■



## TTM Resources Inc. – building moly resources

by Dorothy Hoffert

**TTM Resources Inc.** [TTQ-TSXV], a relatively newly listed junior mining exploration company, has achieved early success on its 100%-owned Chu Molybdenite Project in central British Columbia. On January 29, 2008 the company announced the results of its initial resource estimate to be followed by a National Instrument 43-101 compliant resource calculation conducted by Giroux Consultants Inc. of Vancouver, B.C. This initial resource estimate consists of an indicated resource containing high-grade molybdenum of 57.1 million tonnes grading 0.104% Mo (0.08% cutoff) as part of 235.3 million tonnes grading 0.67% Mo (0.040% cutoff), and an inferred resource of high-grade Mo of 44.4 million tonnes of 0.100% Mo (0.08 % cutoff) as part of 221.5 million tonnes of 0.063% Mo (0.04% Mo cutoff). Accordingly, these initial estimates equate to a contained initial resource of 655 million pounds of molybdenum.

The Chu Molybdenum Project is comprised of seven contiguous mineral claims encompassing an area of 3,246 hectares located in the Omineca Mining Division about 80 kilometres south-southwest of Vanderhoof. The property is accessible by a well maintained logging road and lies approximately 75 kilometres southeast from the Endako Mine, mill and roasting

facility which is 75%-owned by Thompson Creek Metals Company Inc. TTM completed the acquisition of the Chu property in October 2006 and commenced its first drill program in December 2006. The Chu is an area of molybdenite mineralized meta-sedimentary rocks that lie adjacent to a granodiorite. Molybdenum occurs in a quartz-molybdenite stockwork hosted in a hornfelsed siltstone.

The Chu property was the subject of extensive exploration dating back to the early 1980s. Historical drilling of some 5,600 metres resulted in lengthy intersections of strong molybdenum mineralization such as 113 metres of 0.075% Mo and some high grade results such as 28.3 metres of 0.157% Mo. The drilling indicated that the mineral zone was an inclined irregular tabular mass with approximate dimensions of 840 metres in length, 180 metres in width and up to 250 metres in depth, open in all directions. Work by TTM Resources has extended the dimensions of the Chu to 1.7 kilometres in length, 300 metres in width and over 700 metres in depth, all directions still open. TTM has completed over 21,000 metres of diamond drilling since December 2006, encountering numerous long interceptions of what is considered to be ore-grade molybdenum including Hole 07-19 which assayed 0.109% Mo

over an interval of 504 metres. The company expects to spend \$8 to \$9 million on the Chu property during 2008. There are two drills currently operating to expand and upgrade the resource. The company's exploration program has focused on the historic zone which is

contained within only one-quarter of the property. TTM conducted a 125-kilometre induced polarization survey in November 2007 over other prospective areas of the project and anticipates adding a third drill rig to conduct exploration drilling on these under explored zones.

Molybdenum has become a lucrative commodity to explore for since the price per pound has increased from US \$2.00 in 2002 to its current level of US \$30.00, turning projects like the Chu to potentially economic deposits. Moly is a refractory metal used as an alloying agent in steel and other metal alloys to enhance strength, hardness and corrosion resistance. It has low toxicity and is used in numerous chemical applications such as lubricants and catalysts.

TTM is also the 100% owner of three other molybdenum projects in British Columbia: The terrace property located 20 kilometres northeast of Terrace, BC, the Decker Creek Project located 120 kilometres northwest of Stewart, BC, and the Molygold Project located 120 kilometres north of Vancouver. These projects warrant more exploration; however TTM will focus on exploration and development of the Chu in 2008. ■



**MEMBER CIPF** Dorothy Hoffert has been an Investment Advisor for 20 years with a focus on the Mining Sector. She can be reached at 604-662-5271. Within the last 12 months, Wolverton Securities and Ms Hoffert have participated in a private placement for TTM. The information contained in this article was obtained from sources believed to be reliable, however we do not represent that it is accurate or complete. This report is provided as a general source of information and should not be considered personal investment advice or solicitation to buy or sell any securities. The views expressed are those of the author and not necessarily those of Wolverton Securities.



## SASKATCHEWAN – Well positioned to withstand any potential downturn in the U.S. economy

by Eric Hoesgen & Dennis Hoesgen

**The above statement** was made by a spokesperson with RBC and we agree. Now one might think that we are biased as we were born and bred there, rightfully so, but the truth is Saskatchewan's explosive growth rate is being recognized globally. Two leading economic forecasts have Saskatchewan pegged for further upside this year. RBC Financial Group and TD Economics forecast Saskatchewan will have the strongest economic growth rate in Canada in 2008 at 3.5%. For the first time in a decade the migration loss to Alberta has reversed. Saskatchewanians are moving back home, where the cost of living is lower and the economy is gaining momentum. Don't get too excited Mom and Dad – your boys are staying on the West Coast.

Last year was nothing short of a record setting year for the province. Saskatchewan saw more people than ever before working in the province and the biggest jump in income in the country with the average worker seeing his or her income increase by 6.9%. This year is following suit with another job creation record. January saw 496,000 people working in the province which was the most ever for that month and 2,600 more than last year.

Saskatchewan Premier Brad Wall is also very encouraged by these numbers but believes there is room for improvement. "Saskatchewan's economy is strong and our government is working hard to make sure it gets even stronger. We want more job opportunities to ensure our economic growth benefits all Saskatchewan people." We believe this growth is largely attributed to the boom in resources and Saskatchewan is extremely resource rich.

Record high prices in oil, uranium, and potash are driving the industry. The province is increasingly gaining a global audience for becoming a stable and secure energy provider. Saskatchewan Energy

and Resources Minister Bill Boyd said "Saskatchewan is ready and well-equipped to assume an increasingly important role in contributing to North American energy security." Saskatchewan's oil and gas revenues in 2007-2008 are estimated to be \$1.58 billion, up from \$1.43 billion in 2006-2007. The annual value of oil and gas sales in 2007 was approximately \$10 billion up from \$9.5 billion the previous year. A total of 3,445 oil and gas wells were drilled during 2007 including a record 901 horizontal wells.

The agriculture sector has also had a major impact on SK's growth. The Government of Saskatchewan recently announced more than \$8 million in agriculture research funding. 2007 also saw a major increase in grain prices which will almost double farmers' returns for the 2007-2008 crop year. Wheat, for example, doubled in price last year and higher grain prices are forecasted to boost net income for the average Canadian farm by 16% in 2008 to \$41,020 according to the federal Agriculture Department. Total farm cash flow for 2008 is forecast at \$7.2 billion, up 19% from the five-year average, with total net income at \$3-billion, up 43% from the average.

The mining industry in Saskatchewan, the province's third largest industry after oil and gas and agriculture, generated an estimated \$3 billion in mineral sales last year. Saskatchewan has the world's biggest potash industry, and accounts for 35% of the world's trade in potash. Potash sales generate an annual \$2.2 billion. Also, the rising demand for nuclear energy worldwide has given a huge boost to the province's uranium industry. Canada produces about one-third of the world's uranium mine output, with Saskatchewan being a big part of that. Saskatchewan is also home to the largest diamond-bearing

kimberlite field in the world. According to the Saskatchewan Mining Association, diamond exploration has now surpassed that of uranium and accounts for half the expenditures.

Do you see a pattern developing here? Saskatchewan is booming and it is still early days. Can its economy really withstand a major downturn in the U.S. economy? If you want a shot at making money in resources, then we suggest having exposure to the Saskatchewan resource sector. As we have mentioned over and over again, one of the main things we as investment advisors track is money flow. We can tell you the increase in money flow to this province is substantial and to us this means opportunity. As always, do your own due diligence and stay tuned for more on Saskatchewan in the coming months. ■

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# BRIC minus China

by Leonard Melman

**For the past several years,** much of the discussion regarding the enormous leap in fundamental demand for various natural resources which have such an important impact on our world of precious and base metals mining has been centred on China. It is as if that nation is the only important consideration outside the developed economic world. But that is not at all the case.

Several years ago, one of the major international investment banking houses coined the term 'BRIC' reflecting the rapidly escalating importance of several rising new economic powers. The acronym stands for 'Brazil, Russia, India and China.' The bank reasoned that each of these countries was destined to play an ever-increasing roll in the world's supply/demand equation.

With the United States clearly headed for an economic slowdown, the great debate is now centred on whether the growing economies can sustain sufficient internal domestic demand in order to offset the effects of an American recession. The question is one of considerable importance. The term being bandied about so often now is 'decoupling' and relates to whether the other economies are sufficiently 'decoupled' from America.

Many analysts have posed the question in terms of China alone, since that country is now a true economic giant. But the other three, in my opinion, should not be ignored. Each of their economies has special features that are worth considering.

**Brazil** – Once just a South American country known mostly for the Amazon jungle, Brazil's economy has emerged as an agricultural, manufacturing and natural resource powerhouse. Of course, everyone is familiar with Brazilian coffee, but Brazil's other major agricultural

crop, soybeans, has become an enormous cash earner for that nation as the price has exploded upward from US \$5 per bushel to over US \$13 per bushel at present and it has become a major wheat producer as well. Mining is also growing rapidly with substantial reserves of gold, iron, bauxite and copper, among others. Plus, Brazil is a force to be reckoned with in automobile and aircraft manufacturing.

**Russia** – With the demise of the old Soviet Union in 1991, Russia began to transform itself into a capitalist economy. Its most important resource is fossil-based fuels and the country has used production from huge reserves of natural gas and petroleum to earn monumental amounts of foreign currency, now estimated at US \$250 billion per year. In addition, Russia has world-class reserves of gold, copper, chromium, PGMs, iron and one-fifth of the earth's forests. Consumer demand has been rapidly escalating and once they solve two important problems, namely controlling crime and instilling confidence in their judicial system, Russia has the potential to attain a truly dynamic level of prosperity.

**India** – If China has become the world's leader in the production of consumer goods, India (almost as populous with 1.2 billion inhabitants compared to China's 1.3 billion) has become one of the world's leaders in the production of advanced ideas in technology and in the provision of information services. India has become a centre for customer call services, for computer programming services and for specialized information products. Indians are emerging from poverty by the tens of millions each year, creating demand for all manner of consumer goods, most particularly low-priced automobiles, which are becoming more readily available.

Combined, India, Russia and Brazil have populations totaling close to 1.8 billion, far larger than China's 1.3 billion. These countries are becoming more productive, more prosperous and more consumer-conscious and therefore, combined, represent a formidable addition to the world's economic picture, particularly on the demand side. Their thirst for consumer goods of the widest conceivable variety has become part of their national identity and they now have the wage-earning capacity to satisfy that thirst.

It is clear that the world's economic balance is shifting once again. From the industrialized world alone, to the industrialized world plus China, we appear to be now entering an era when it is the industrialized world, plus China, as well as the other BRIC nations. It would appear that the combined demand from these four nations will likely be able to provide sufficient resource demand to offset any reductions from America. If this is true, and the recent resurgence of the base metals prices following substantial selling waves would suggest that this is the case. A bullish stance on both the precious and base metals could be profitable. That is the speculation. ■

*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](mailto:lmelman@shaw.ca)*

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## Navigating in choppy markets

by Rod Blake

**Well, now we've done it.** We had a good feeling and thought we'd hop in the speculative boat, cast a few dollars into the market and bring in an easy profit or two. We'd done our homework and found our favourite companies to invest in. We timed it right to catch the perennial New Years rally and, bonus, here we have precious metals charging to new multiyear and, in the case of gold and platinum, to all time highs. This was going to be easier than shooting fish in a barrel.

But wait, something's not right. The market looks and feels weird. Gold and platinum stocks aren't following the metals higher. And our company's news releases aren't exciting investors. The market is getting very choppy. One day up and two


or three days down, followed by some base building before yet another small uptic, and then right back into the abyss. Someone, please pass the Gravol. And then, there's all that talk of sub-prime mortgages and asset backed commercial paper. Why can't the media just stop talking about it? It's so distracting, and what's it got to do with ABC Minerals drilling its latest gold prospect? Something's different this year. Something's rocking the boat, and we'd better figure out how to deal with it before this market takes all of our capital.

In short, what's rocking our portfolio's boat is a good old fashioned bear market. Now, don't get this wrong. It's a bear stock market, and not a bear resource market. That is, stock prices are going lower while resource prices are going higher. As I've commented previously, resources are in a secular bull market that began in 2001 and should last for a generation, or about 18 years. It is being fuelled in part by the 3 billion people of the Far East and Third

World achieving a middle class lifestyle. The resource prices will react to short term influences, but should generally trend higher over time. Stocks, especially big cap financial stocks are in a bear market that is trying to come to grips with the uncertain credit and economic problems in the United States. The big money is getting hit with margin calls and they're bailing and they don't care what they sell to flatten their positions. Eventually, the bear will pass, but it might be choppy for a while.

What we have to do now is weather the economic storm. Focus on value with our core companies. Accumulate positions patiently and take profits according to what the market will give. Slow and steady for a while, that's the answer. This storm will pass and we'll have smooth sailing ahead. ■

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# Bannerman Resources upgrades Namibia $U_3O_8$ resource

by Greg Barns

Uranium is a hot topic these days, given the role it will play in reducing the impact of climate change around the world. And **Bannerman Resources Ltd.** [BAN-TSX; BMN-ASX] hopes to feed some global demand over the next couple of years. The company, which has two exploration licenses in Namibia, is looking at an innovative electrical solution to help it get into production quicker.

Based in Perth, Bannerman, which listed on the TSX late last year, is looking to develop the Welwitschia deposit in western Namibia. This deposit has 12 known uranium anomalies known as the Rossingburg Anomalies, and is next door to the 30 year old Rio Tinto-owned Rossing Mine. The company has been focusing on the Goanikontes Anomaly A, and with good reason. Previous drilling in the 1970s and 1980s showed that the Goanikontes Anomaly A contains alaskite-hosted mineralization similar to the successful Rossing Mine.

Bannerman recently announced a substantial resource upgrade at the Goanikontes Anomaly A deposit. On January 30 this year, after calling a trading halt in both Toronto and Perth, it reported the indicated resource is 72.2 million lbs.  $U_3O_8$ , up from the previously announced 26.9 million lbs. reported in May 2007.

Coffey Mining, Bannerman's consultants, estimated the NI 43-101 compliant resource using 223 RC and 19 core holes drilled in 2007 into Anomaly A over a strike extent of about 2.2 kilometres. A combination of chemical assays and radiometric data was also used for the estimation. Drill spacings were from 50m by 50m, 50m by 100m and 100m by 100m.

Coffey broke up the estimate into an inferred category of 59.3 million lbs., and an indicated resource of 12.9 million lbs. using a 100 ppm cut-off. The bulk of the resource was modelled down to about 300 metres vertical. Bannerman is now continuing its drilling program with a view to producing a final resource down to around 400 metres.

A scoping study, also completed by Coffey, has given Bannerman some idea of what sort of mining operation the company might contemplate. The study concluded that the mineralogy of the Goanikontes Anomaly A deposit is analogous to Rossing, in that both contain easily leachable uranium materials. The study envisages a 15 million tonne/year milling operation with an annual production target of between 5.5 million and 8.8 million lbs. Capital costs for an open pit mine are estimated to be about US \$400 million, assuming that commissioning takes place in 2011.

A major issue for Bannerman is power supply. Namibia imports almost half its power from neighbouring South African power company, Eskom. That's not ideal, given the rapid expansion of the South African economy and the limited power available. So Bannerman is examining the possibility of onsite production of sulphuric acid so that it can produce about 70% of its own power and reduce reliance on Namibia's power provider, Nam Power. To this end, Bannerman had consultant IMO undertake a study into co-generation of power from exothermal heat produced from burning sulphur. The IMO study concluded that construction of an acid plant with co-generating power turbines would reduce process plant operating costs by a significant US \$3.18/lb  $U_3O_8$ . ■

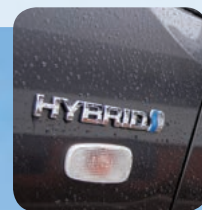
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# MANY METALS MANY LOCALES

Well-known mining entrepreneur Richard Hughes is building a solid stable of junior exploration and mining companies

by Ellsworth Dickson



Richard Hughes, following a number of very successful years with former partner Frank Lang, during which time they participated in the great Hemlo gold discovery of the early 1980s, has been busy assembling and building his own group of junior exploration companies.

“Back in 1996, Frank and I divided up our companies,” explains Hughes. “I had three companies, including Arbor Resources, now called **Klondike Gold Corp.** [KG-TSXV]. We also formed other new companies as we went along. Currently, we have seven companies in our stable and plan to launch a few more.”

There is a business strategy behind these companies. “We want to explore in safe parts of the world, says Hughes. “Unlike some other junior explorers, we want to avoid countries where there is a risk of nationalization as well as changeable tax structures and mining regulations. That’s why we have projects in southeast BC, Yukon, northern Ontario, parts of the east coast of Canada, Nevada and Mexico. At present, about 95% of our properties are located in the region of the Timmins Mining Camp of northern Ontario, on south to the Kirkland Lake Gold Camp and over in the Gowganda Silver Camp.”

The Timmins Camp has produced 67 million ounces of gold and is the site of Canada’s biggest mine – the \$35 billion deposit Kidd Creek Mine that is still in production.

“CEO of **Golden Chalice Resources Inc.**

[GCR-TSXV], John Keating has gained a great deal of understanding as to why these camps host so much metal,” says Hughes. “Based on Keating’s geological detective work, we have acquired what we believe are very prospective mineral properties in or near these camps. Maybe I’m getting ahead of myself, but I think we have a good chance to discover another Timmins-like camp in our Timmins West Project that is in our company, Golden Chalice. The deposits could host gold, gold-copper, lead-zinc-silver, nickel and even diamonds. We have done preliminary trenching and soil sampling and so far our theory has proven to be correct. Our geologists have scoured this region for about 200 miles east-west and 200 miles north-south to stake the choicest properties.”

Using new geophysical technologies such as Geotech’s VTEM survey gear as well as utilizing the Mobile Metal Ion technique of soil sampling, Hughes’ geologists have defined promising drill targets. “These new technologies have not been used in these big belts before,” explains Hughes. “We know it works because we made five new discoveries last year and anticipate making more this year.”

Golden Chalice recently made a significant nickel discovery in the area. “Our major Langmuir nickel discovery is located 35 kilometres south of Timmins,” says Hughes. Details on Langmuir are noted later in this article.

Explorers need more than a geographi-

cal strategy – they also require a geological strategy as well. “We want to explore in a well mineralized area that has seen a great deal of production. We look for all sizes and sites with history that have potential,” says Hughes. “If a project is small tonnage, then we like to see high grades. On the other side of the coin, at Golden Chalice’s Abitibi East Project 60 kilometres east of Timmins, deep drilling is underway. There, we are looking for another Kidd Creek-sized deposit where a six by two-kilometre down-drop graben, or sub-basin, (a favourable geological environment) has been found to host encouraging values in zinc, copper and lead. We consider projects that we can take to production ourselves or with a partner.”

RIGHT; Peter Caldbick, in foreground, chief geologist for the Timmins area, northern Ontario, with two diamond drillers at the Langmuir Project. Photo courtesy Hughes Exploration Group.

Hughes says his companies target commodities that are readily saleable in the marketplace – so he avoids metals such as chromium which can be tricky to sell.

“We like to target lead, zinc, silver, copper, gold and nickel,” says Hughes. “In addition, all those metals are in great demand around the world.”

In eastern Canada, the prolific Bathurst



Mining Camp of New Brunswick is running out of ore. Hughes and his geologists believe there is enough geological evidence to warrant launching exploration programs seeking sedimentary deposits of zinc, lead, silver and copper. "With Golden Chalice,

we are looking for another major deposit on the 100% optioned Carboniferous and Portage Lake properties," says Hughes.

"Also in the major deposit category, we have now spent over \$8 million in the Cranbrook/Kimberley area of southeast BC

exploring for another large Sullivan-type silver-lead-zinc orebody with three of our companies as partners: Abitibi Mining Corp. [ABB-TSXV], Sedex Mining Corp. [SDN-TSXV] and Klondike Gold.

A little off the track from most of the Hughes projects is Chalice Diamond Corp. [COD-TSXV] which has a diamond discovery in the Wawa-Chapleau area of northern Ontario where the land position is 45 miles east-west and 20 miles north-south. "While exploring for diamonds in the area, we also stumbled upon gold and nickel showings," says Hughes. "So far, we have found some diamond-bearing kimberlite dykes. We think the dykes are connected to a main kimberlite pipe and a drilling program to find the pipe is planned for 2008."

It's interesting to note that Hughes' geologists like swamps and muskeg as nobody has explored below them. Using new technologies and drilling in the winter when everything is frozen, it's possible to discover new mineral deposits.



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Mineral Reserves	Casa Berardi	1,169,000
Measured & Indicated	Casa Berardi	526,000
Indicated Resources	Joanna	630,000
<b>Total Measured &amp; Indicated Resources</b>		<b>1,156,000</b>
Inferred Resources	Casa Berardi	1,060,000
Inferred Resources	Joanna	1,413,000
<b>Total Inferred Resources</b>		<b>2,473,000</b>

### Aurizon's Assets

**Casa Berardi (Gold) in Production**  
160,000 - 170,000 ozs gold/year  
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**Joanna (Gold) Advanced exploration**  
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"Another one of our recent discoveries is on the Horwood gold property (**Amador Gold Corp.** [AGX-TSXV]) located 30 miles southwest of Timmins. Highlights from some of the separate channel samples at Horwood include 13.03 grams gold/tonne over 0.5 metres, 5.62 grams/tonne over 4.0 metres and 2.09 grams/tonne over 2.5 metres.

Thirty-five kilometres south-southwest of Timmins is Golden Chalice's Langmuir nickel discovery, a Kambalda-type nickel occurrence similar to those in Australia," says Hughes.

Australia at one time produced about 14% of the world's nickel from Kambalda deposits which formed in volcanic flows. At Langmuir, Hughes believes the flows have been tipped up about 90°. Golden Chalice is drilling the edge of this formation. Initial drilling at Langmuir returned 1.14% nickel over 72.50 metres. The latest drilling returned 1.62% nickel over 4.90 metres, 25 metres east of the discovery hole. The Langmuir drilling results also confirmed the presence of platinum and palladium as well as nickel, thus increasing the value of the rock per tonne.

"Because we believe the Langmuir mineralized flows are tipped on end, there's no telling just yet how deep the mineralization goes – it could be many kilometres," Hughes speculates. "We have over 30 more drill targets to test with our three rigs operating on the frozen muskeg. We really

believe Langmuir is going to be a mine – we just don't know how big."

Up in the Yukon, Klondike Silver has made a lead-zinc-silver discovery on the Connaught property where a 5,000-tonne bulk sample is planned to be taken this year. "Also in the Yukon, **Klondike Gold Corp.** [KG-TSXV] has farmed out a 75% interest in a property to an unrelated company, **Klondike Star Mineral Corp.** [KDSM-OTCBB]," says Hughes. "To date, we have found three of the major sources of the Klondike placer deposits in the Eldorado-Bonanza Creek Basins. Klondike Star has found two gold zones. In addition, we are also participating in a nearby Klondike Star placer gold project."

At the silver-lead-zinc mine of **Klondike Silver Corp.** [KS-TSXV] at Sandon, south-east BC, production is being organized in up to three areas – the Silvana Mine at the 4625 level, the Wonderful Mine property on levels 2, 3 and 4, as well as the Hinckley Mine.

"Together, the three mines will feed the mill which we intend to increase production towards the capacity of 100 tonnes per day," says Hughes.

There used to be over 100 small silver-lead-zinc mines that began operating in the late 1800s and into the 1930s that stopped in ore, due to low metal prices. Klondike Silver controls about 80% of the Sandon Silver Camp and is seeking undiscovered

deposits under the overburden that the old timers missed, as well as mining the known unmined ore.

Klondike Silver has extracted an 80-tonne bulk sample from its Stump Silver-Lead Project in the Yukon and shipped it to the Silvana mill at Sandon, BC. More bulk sampling is planned.

Hughes is also exploring for silver in the Gowganda Camp, northeast Ontario, which never achieved the production levels of the Cobalt Silver Camp to the east. About 90% of the Gowganda Camp is now controlled by Klondike Silver and Amador.

In northern Québec, another Hughes company, **Kalahari Resources Inc.** [KLA-TSXV], has a gold project in Val d'Or where a major drill program is underway. Hughes is also active on Amador's formerly producing Ajax nickel-platinum-palladium property near Kirkland Lake. In Mexico, Hughes' Klondike Silver has three silver-gold projects near the west coast that were mined by the Spaniards. The Santa Lucia property, a joint venture with **Kootenay Gold Inc.** [KTN-TSXV], is now drill-ready. Klondike Silver is also active on the Starling Project in Mexico. In Nevada, Golden Chalice has an option to earn a 100% interest in the Uke property, Nye County, Nevada, where a Carlin-type gold deposit is being sought.

"My ambition is to come up with seven new discoveries in 2008," says Hughes. ■



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## StrataGold receives tungsten resource estimate and finds more Tassawini gold

StrataGold Corp. [SGV-TSX] reports that SRK Consulting (US) Inc., an independent consulting firm, has provided a NI 43-101 resource estimate for the Mar-Tungsten deposit located 2.5 kilometres from the Eagle Zone on StrataGold's 100%-owned Dublin Gulch Project, Yukon. The deposit contains 45.59 million pounds of tungsten ( $WO_3$ ) in the indicated category and 17.22 million pounds of tungsten ( $WO_3$ ) in the inferred category based on a 0.1%  $WO_3$  cutoff. The current price for tungsten is US \$10.60/lb.

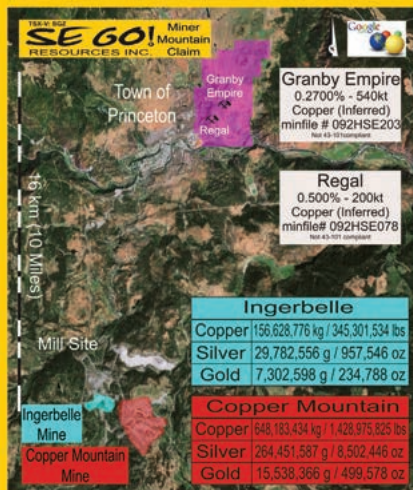
StrataGold's flagship project in Guyana, South America is the 100%-owned Tassawini property. In late 2007 the company reported the discovery of two new gold zones. One of the new gold zones is approximately 250 metres south of the Tassawini deposit which contains a NI 43-101 resource of 208,316 ounces of gold in the indicated category and 151,089 ounces of gold in the inferred category based on a 0.50 grams per tonne cut-off. This new zone was discovered by drilling a blind induced polarization geophysical target unrelated to a gold soil anomaly. The second zone, discovered by drilling, is located at the Sonne South zone, in an area previously defined through reverse circulation drilling. Drilling intersected gold mineralization in both saprolite and bedrock related to a mineralized fault zone which is open in all directions.

StrataGold has also reported diamond drilling results from the Monosse property, located 45 kilometres west of the Tassawini property, and is subject to a 50/50 joint venture with Newmont Overseas Exploration Limited, a subsidiary of Newmont Mining Corporation [NEM-NY, ASX; NMC-TSX]. In 2007, a total of 2,676 metres of drilling was completed in 14 holes. Highlights of the latest drill results include MD018 which intersected 1.86 grams gold/tonne over 18.9 metres at the Gomes Hill target. Gold mineralization has been intersected over a minimum strike length of 450 metres, with a variable true width that averages about 12 metres. Results to date demonstrate that gold mineralization remains open in all directions at this time. ■

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# Why cobalt counts

## A BRIEF INVESTORS' GUIDE TO COBALT

Demand for the high-tech metal is increasing faster than supply, resulting in record high prices and growing investor interest

by Peter Caulfield

**Although cobalt has long been in use**, it has been largely ignored by investors. But thanks to its rising price – at least 70% in the last year – the metal is starting to attract the attention of more and more people.

As recently as 2006, the price of cobalt was around US \$15/lb. By February 2008, because of increasing demand and sluggish supply, it had more than tripled to US \$48.50/lb. Some traders believe the price of cobalt will go over US \$50/lb. Others think it could go as high as US \$100/lb.

Last year the soaring price of cobalt caught the eye of Swiss bank **Credit Suisse** [CS.N-NY]. In August 2007, Credit Suisse opened a market in cobalt. Because Cobalt is not traded on an exchange, the only way to invest in it, until the creation of the fund, was to buy the metal and store it. But the new financially-settled contract makes it possible to buy cobalt without ever taking delivery of the metal. The contract is priced on data published by the *Metal Bulletin*.

### The essential element

Cobalt has countless applications in health, communications, home, office, travel and national defense. Cobalt is used to make, among other things, magnets, high-strength steels, cemented carbides, diamond tools, and catalysts for the petroleum and chemical industries.

The largest use of cobalt is in super alloys, which are used to make parts for gas turbine aircraft engines. A typical turbofan jet engine requires 110 to 132 lbs. of cobalt. Scott Bending, president of **Formation Capital Corp.** [FCO-TSX], a Vancouver-based cobalt exploration company, says cobalt is valuable in those applications because it keeps its magnetic properties at high temperatures.

"There really aren't any practical substitutes for cobalt in jet engines and turbines," Bending says. "At high temperatures, other materials quickly lose their efficiency and effectiveness."

A future use of cobalt is expected to be in environmentally-friendly gas-to-liquid technology, which has the potential to convert uneconomic natural gas reserves into ultra-low emission liquid petroleum fuels.

### Demand for cobalt growing

According to the Cobalt Development Institute (CDI), cobalt demand has grown at a compound annual rate of about 6.6% for

Mari-Ann Green, chairman/CEO of Formation Capital. Photo courtesy Formation Capital Corp.



A worker pours 1,000-ounce silver bullion bars at Formation Capital's Sunshine Precious Metals Refinery in the Coeur d'Alene Mining District, northern Idaho. Photo courtesy Formation Capital Corp.

the past 10 years and at significantly higher rates more recently. The CDI says it expects a future growth rate in demand of 3%. Because of Chinese and Asian demand, there has been especially strong growth for cobalt used in batteries, super alloys, specialty steel applications and hard facing alloys and tool steels.

Most of the cobalt that is produced is the byproduct of nickel and copper mining. With the application of innovative new extractive technologies, however, primary operations are becoming more viable.

The main sources of cobalt are the Democratic Republic of Congo (DRC) and Zambia, and from nickel production in Russia, China, Canada, Cuba and Australia.

Producers of cobalt include **Phelps Dodge** [FCX-NY]; **Xstrata** [XTA.L-LSE]; **BHP Billiton** [BHP-NY] and **Managem**, a privately-held company in Morocco.

### Growing number of publicly-listed cobalt explorers

There are a growing number of cobalt exploration companies on the Australian Stock Exchange.

**Tiger Resources Ltd.** [TGS-ASX] is focused on the discovery and development of copper-cobalt deposits hosted in the Roan Sequence of the Africa Copper Belt in the DRC.

**Metallica Minerals Ltd.** [MLM-ASX] has the Nornico Project in Queensland, Australia, which comprises several drilled nickel-cobalt laterite deposits and is prospective for additional nickel laterite.

**Resource Mining Corp.** [RMI-ASX] is focused on the Wowo Gap nickel project in Australia. A 2005-2006 review of exploration data at Wowo Gap showed an inferred resource estimate of 120 million tonnes at 1.2% nickel and 0.1% cobalt.

**Havilah Resources NL** [HAV-ASX] has the Mutooroo Copper Mine in South Australia. Havilah says an open pit mine can be sustained at Mutooroo for at least 11.5 years at an annual throughput of 1 million tonnes to produce approximately 10,000 tonnes copper and 1,000 tonnes of cobalt per year.

**Vulcan Resources Ltd.** [VCN-ASX] is focused on the completion of a definitive feasibility study of its Kylylahti copper-cobalt project in eastern Finland. It has a resource of 7.85 million tonnes grading 1.17% copper, 0.24% cobalt, 0.22% nickel, 0.49% zinc and 0.70 grams gold/tonne.

In addition to the Aussies, there are companies exploring for cobalt listed on the Toronto Stock Exchange.

**Formation Capital Corp.** is a Vancouver-based company that has a 100% interest in the Idaho Cobalt Project, a primary cobalt deposit that is the only one of its kind in the Western Hemisphere, with production estimates of over 1,600 tons of high-purity cobalt per year. The U.S. consumes approximately 29% of the world's cobalt and more importantly, approximately 60% of the high-purity material, but does not have a domestic source of the metal.

Formation vice president Rick Honsinger says the U.S. federal government considers cobalt a strategic metal critical to the country's safety because it's used in the domestic and military aircraft industries.

Mari-Ann Green, chairman/CEO of Formation, says that at current commodity prices, average annual net cash flow is projected to be over \$95 million over a minimum 10-year mine life. A bankable feasibility study completed in 2007 showed

proven and probable reserves of 2.64 million tons averaging 0.56% cobalt, 0.60% copper and 0.014 oz. gold/ton, for a contained 32.5 million lbs. of cobalt, 35 million lbs. of copper and 40,000 ounces of gold.

The 100%-owned Big Creek Hydro-metallurgical processing complex is located 200 miles north of the project. Hongsinger says concentrates can be transported economically to the processor and processed in an environmentally sound manner for the recovery of cobalt, copper and gold. The Sunshine precious metals refinery, which is part of the Big Creek complex, is a zero-discharge, expansion-capable facility.

**Geovic Mining Corp.** [GMC-TSX], of Grand Junction, Colorado, says its goal is to become the world's largest primary producer of cobalt by mid-2010, thanks to its 60% ownership of Geovic Cameroon PLC (GeoCam). GeoCam's mine permit gives it exclusive production rights to seven large cobalt-nickel-manganese laterite deposits in southeast Cameroon, Africa. Geovic says the first full year of production in 2011



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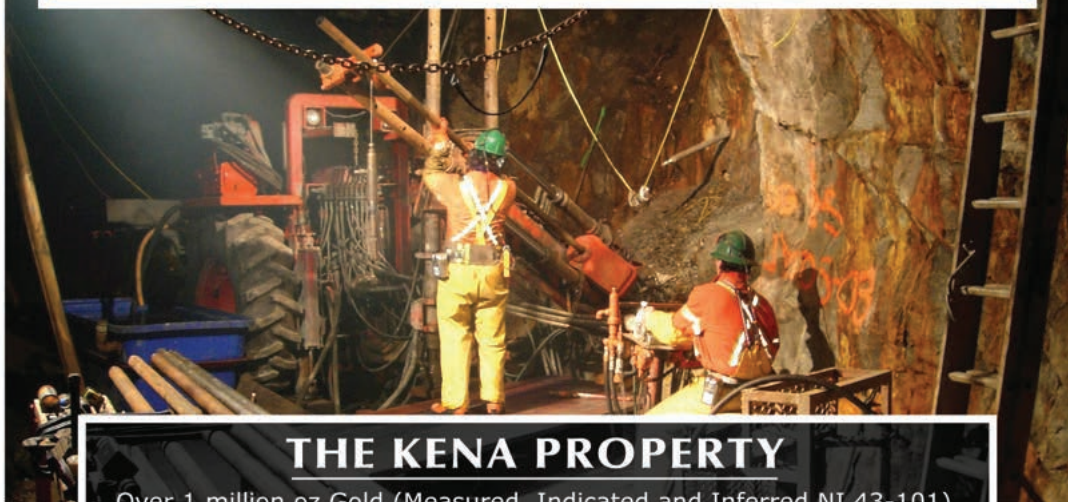
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will generate an after-tax cash flow of \$164 million.

**Katanga Mining Ltd.** [KAT-TSX], of London, UK, has joint venture operations in the DRC that, the company says, have the potential to make the company the world's largest cobalt producer and Africa's largest copper producer. A four-year phased ramp-up will see the company targeting 400,000 tonnes of refined copper and 40,000 tonnes of refined cobalt a year by 2011. A scoping study is being carried out and a full feasibility study will be published in Q3 2008.

**Castle Resources Inc.** [CRI-TSXV] is a Toronto-based company that recently signed a letter of intent with **Legends of**

**Cobalt Corp.** and its five shareholders to acquire the rights to a majority land position in the Cobalt, Ontario silver camp. In the past, the camp produced more than 445 million oz. silver and 45 million lbs. cobalt. Castle believes the land package has the potential for underground and open-pit operations. Before the camp was consolidated, modern, district-scale exploration techniques were not used, because ownership of the land was fractured.

**Caledonia Mining Corp.** [CAL-TSX] is a Toronto-based company with assets in Africa. One of Caledonia's projects is the Nama Cobalt Project in Zambia, one of the world's largest known primary cobalt oxide

deposits. The signing of the first cobalt off-take agreement with a large Chinese refiner will enable Nama to move into mine development, with first production targeted for early 2009. The deposit will be mined by open-pit and conventional cobalt extraction to produce a cobalt hydroxide.

**PolyMet Mining Corp.** [POM-TSX] is a Vancouver-based company whose primary asset is its wholly-owned NorthMet copper-nickel-precious metals project in northeastern Minnesota. The company plans to produce nickel-cobalt hydroxide; high-grade copper cathode; and precious metals precipitate. PolyMet is in the late stages of securing operating permits. The draft Environmental Impact Statement is expected to be published by the State of Minnesota around the end of Q1 2008, with permitting in the second half of 2008 and initial production of concentrates in mid-2009.

**International Millennium Mining Corp.** [IMI-TSX.V:IMI] is a Vancouver-based company with properties in Canada, the U.S. and Mexico. Recently completed MMI soil sample surveys on its property near Cobalt, Ontario outlined strong anomalies that were interpreted as indicating silver-copper-cobalt veins. Further detailed sampling was carried out to optimize drill targets. The results were compiled in February 2008 and will be released in a follow-up report. The company said it will announce a drill program at that time.

**Baja Mining Corp.** [BAJ-TSX] is a Vancouver-based company that owns a 100% interest in the El Boleo Project, an advanced stage polymetallic property in Baja California, Mexico. El Boleo is Mexico's largest copper-cobalt deposit. According to a recently completed definitive feasibility study, the project has sufficient proven and probable reserves for a 25-year mine life. The first four years of production, which is likely to start approximately Q4 2009, is expected to generate 1,535 tonnes cobalt cathode, 55,750 tonnes copper cathode and 6,300 tonnes zinc-contained metal.

It's clear that many industries and governments need cobalt, and with its current high price, companies involved in cobalt exploration and mining are definitely ones to keep an eye on. ■



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## MINING



Left to right, Garry Smith, VP Exploration, Gold Canyon, overseeing the location staking of a new set of drill holes. Sam Nunnamaker, Consulting Geologist, and Tom Dodge, Consulting Geologist, are setting a foresight for an angle hole. Photo courtesy Gold Canyon Resources Inc.

Examples of Cordero gallium mineralization. The dark red sample also contains hematite. The tan-coloured sample (large piece) was collected from the G Pit and graded 7,100 ppm gallium. The circular wafer is gallium arsenide. The flashlight, made by Nichia of Japan, uses a gallium LED. Photo by Ellsworth Dickson.



# Gold Canyon receives new Cordero gallium estimate

by Ellsworth Dickson

Akiko Levinson, president, reports **Gold Canyon Resources Inc.** [GCU-TSXV] has received a new updated NI 43-101 compliant gallium resource estimate for its 100% controlled Cordero Gallium Project located in Humboldt County, north-central Nevada, just south of the Oregon border. The resource estimate was prepared by Timothy Carew of reserva International LLC, an independent mining consultant and Qualified Person. The expansion of the gallium resource at Cordero is based on an additional 18,850 feet (5,745 m) of reverse circulation (RC) drilling in 81 holes completed by the company in 2006 and 2007. This brings the total drilling to 39,985 feet (12,190 m) in 163 RC drill holes and increases the nominal drill hole density to 100 feet on centre. The gallium resource remains open along strike and down dip.

In preparation for a pre-feasibility study, Gold Canyon has commenced a large-diameter core drilling program. The 1,900-acre property hosts the largest known primary gallium resource in North America and features excellent infrastructure, including easy road access, power, water and telephone service.

The large-diameter core will add more gallium-bearing material being collected in a bulk sample for metallurgical testing. The drilling program is also designed to follow-up on encouraging results from previous drill programs and to further test the new high-grade model that returned up to 245 grams gallium/tonne over 25 feet. Rare earth element anomalies, identified earlier, will also be drill-tested. Rare earths discovered to date include scandium, yttrium, cerium, neodymium, samarium, gadolinium and lanthanum.

Metallurgical studies will be carried out on the rare earth-bearing samples at the same time as the gallium-bearing samples. It is expected the rare earths can be extracted using acid digestion and solvent extraction.

Since it is known that mercury is present in the mineralized material, Gold Canyon will conduct studies for the maximum extraction of that element with a view to minimizing any mercury that would report to the tailings. In addition to producing saleable products of gallium and rare earths, the company would like to sell a mercury product. Mercury is a useful element that is commonly used in fluorescent lights which are seeing increasing use as they consume

less energy than incandescent lights.

Mountain States R&D International, Inc. of Arizona has received a bulk sample and is currently conducting metallurgical scoping work. The objective of this work is to produce a final process flow diagram for the production of gallium and the other rare earths. A minimum of US \$1 million has been budgeted for this year's program at Cordero.

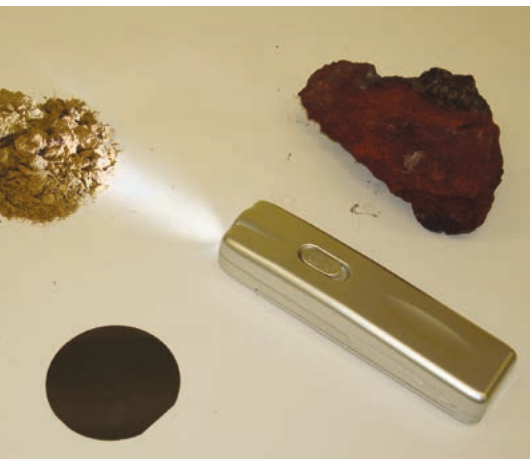
Gold Canyon is also planning a drill program at its Springpole Gold Project to step-out along the new sedimentary-hosted, semi-massive sulphide discovery made at the end of last winter's drill program. The 20,000-acre, 100% controlled project is located in the Red Lake Mining District of northwest Ontario, approximately 115 kilometres east-northeast of the town of Red Lake. The exploration team is encouraged by the 0.25 oz. gold/ton assay over 14 feet (8.4 grams/tonne over 4.26 metres) from the 2007 winter drill program which represented a style of mineralization that has not been previously known at Springpole. The new gold discovery from the last drill program is also adjacent to a significant fluorite carbonatite zone that hosts significant levels of rare earth elements and exotic metals.

Gold Canyon is also active on its joint venture with **Shoreham Resources Ltd.** [SMH-TSXV] which has begun a winter 2008 program on the Borland Lake silver target, Favourable Lake Project, Red Lake district, Ontario. Shoreham can earn an initial 60% interest from Gold Canyon, and a second-stage option to earn an 80% interest.

Gold Canyon also has an option to acquire

Category	Metric Tonnes	Gallium PPM	Gallium Metal Kilograms
Measured	1,088,300	52.4	57,020
Indicated	13,882,800	47.3	656,910
Total Measured & Indicated	14,971,100	47.7	713,930
Total Inferred	6,591,600	43.7	334,590

Resources above 30 PPM gallium (rounded). PPM = parts per million



100% of the Horseshoe Island Project covering 3,160 acres, located eight kilometres west of the Springpole Core Area. Additional staking linked the Horseshoe Island and Springpole properties, creating a total site area of 28,935 acres. ■

Gallium, which sells for approximately US \$650 per kilogram, is an unusual metal that is in increasing demand for high-tech applications. As a useful comparison, one kilogram of gallium has roughly the same value as an ounce of gold. Gallium compounds including gallium arsenide (GaAs) and gallium nitride (GaN) are among the most important of the semi-conductor compounds. Gallium is a soft, silvery metallic element that melts in the hand. About 95% of gallium is consumed by the electronics industry to manufacture cell phones, high-efficiency photocells, computers, and solar panels. Gallium is increasingly used in light emitting diodes (LEDs) since they produce light with only a fraction of the electricity used in incandescent bulbs. Research is also underway on a variety of gallium applications at the University of California, Santa Barbara. The United States consumes about 21,000 kilograms of gallium annually, followed by Japan. There are no stand-alone gallium mines anywhere in the world and it is currently obtained as a byproduct in zinc mines and from recycling.

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# Toxic noise in mining

New technology prevents hearing loss in miners

by Cavelle Macdonell

According to the National Institute for Occupational Safety and Health, 70-90% of all persons working in mines have noise-induced hearing loss great enough to be classified as a hearing disability. Noise-induced hearing loss, the most prevalent, irreversible occupational hazard for mine workers, is easily preventable. Noise-induced hearing loss is permanent; no medical treatment, no surgery, not even a hearing aid can restore hearing.

The problem is severe in all areas of mining where workers are exposed daily to the incessant din of machinery on surface, in processing plants and underground workings. Screens, centrifuges and sieve beds are the loudest primary noise sources. The use of heavy equipment, the drilling of rock and the confined work environment contribute to high levels of noise exposure in mining.

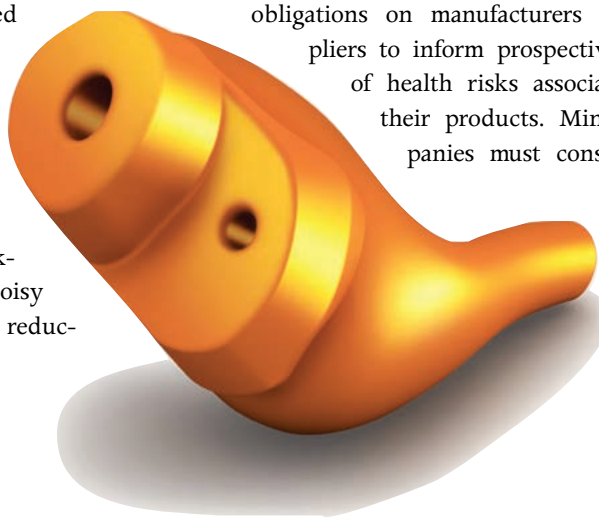
In Canada, standard industry testing

delineates all areas where 85 decibels is used as the level for mandatory hearing testing and the implementation of a hearing conservation program. Canadian standards restrict noise levels in the workplace to 87 decibels for an eight-hour daily exposure. For each increase of 3 decibels, the duration of the worker's exposure to noise must be reduced by half the work time.

According the Canadian Hearing Society, experts on noise and hearing loss have expressed concern about the leniency of current regulations and the inadequacy of ear plugs, ear muffs, and annual hearing tests to protect workers' hearing in a noisy environment. Noise reduc-

tion, rather than ear protection, is the best way to prevent occupational noise-induced hearing loss. In other words, muffle the machine, not just the worker. Improved legislation could require the erection of acoustical barriers around noise sources in the workplace and the installation of effective mufflers on industrial equipment. The Hearing Society has published a series of four booklets entitled – *Hear to Stay* – *Make Noise About Noise*.

Mines Safety Legislation places legal obligations on manufacturers and suppliers to inform prospective buyers of health risks associated with their products. Mining companies must consider that



The Sonomax ear plug is a practical solution for protection from hearing loss due to high levels of noise. Photo courtesy Sonomax Hearing Healthcare Inc.

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the only effective measure against hearing loss is the prevention of noise-induced hearing impairment. Given the present profitability of the mining industry and environmental awareness, now is the time for responsible decision-making by mining companies and legislators. Effective ways to prevent hearing loss can be achieved with a combination of engineering and training.

Collectively, workers, investors, manufacturers, designers, and suppliers must become involved in upgrading plants and mining processes. The cost of a hearing conservation program is small compared to the cost of claims that are paid out due to occupational hearing loss.

**Sonomax Hearing Healthcare Inc.** [SHH-TSXV], which went public in 2001, is a leader in the research, development, and manufacturing of intra-ear technology for hearing protection, communication, hearing enhancement, and other auditory applications. The Sonomax earpiece fits perfectly and continuously conforms to the changing shape of the ear canal.

In 1997, Montrealer Nick Laperle, co-president of Sonomax, decided to transform the hearing protection industry. Laperle saw a critical gap between the attention paid to vision care and the lip service paid to hearing care and he translated this anomaly into a business opportunity. Meeting with one scientist at a time, Laperle focused his certainty that intra-ear expansion technology (then in its infancy), together with a wholly original software-based testing procedure (then in its pre-infancy), could be developed into a definitive solution for the battle against toxic noise.

Sonomax's hearing protection systems are now recognized internationally by hearing health experts; approved by relevant government regulators; adopted by hundreds of industrial companies including: Falconbridge's Raglan Mines, Rio Tinto, Alcan, Xstrata, and Anglo-Platinum.

Laperle has been nominated for Canada's Top 40 under 40 Award recognizing his vision and leadership. Winners will be

announced May 2008.

Sonomax just announced its partnership with Virgin Entertainment Group. The company will introduce its revolutionary technology for use with MP3 players as well as cellular Bluetooth™ adaptors, multi-media gaming earphones and a wide variety of other audio devices, at two flagship Virgin Mega-stores in Los Angeles (February 2008) and New York (March 2008). At the 50th Annual Grammy Awards gift lounge, Sonomax will offer presenters and performers an exclusive look at these patented, custom-fit,

hi-fidelity earphones.

Sonomax has become a major player in protecting workers in noisy environments with its leading technical innovations. The earplug, called the SonoCustom™, is the company's flagship product mainly used in the industrial sector; however it can be equally effective for concert goers and sport spectators. According to their web site, it is a perfect balm for the blaring take off on your next red eye flight and it's also been used to block out the most toxic noise of all – your spouse's snoring! ■

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## COLUMBIA YUKON INTERSECTS GOOD MOLY

Columbia Yukon Explorations Inc. reports assay results for five additional drill holes for its Storie molybdenum property near Cassiar, northern British Columbia. In 2007, 76 holes were drilled (23,000 metres of core drilling). Assays are summarized below:

HOLE Number	FROM metres	TO metres	INTERVAL metres	INTERVAL feet*	MO %	MoS %**
ST07-52	180	328	133	436	0.049	0.082
including	234	328	94	308	0.057	0.095
ST07-53	161	372	111	364	0.057	0.095
including	278	372	94	308	0.070	0.117
ST07-54	83	302	220	722	0.133	0.222
including	167	284	117	384	0.066	0.110
ST07-55	191	284	93	305	0.078	0.130
including	34	331	297	974	0.073	0.122
including	82	331	249	817	0.081	0.135
including	151	331	150	492	0.097	0.162

\*conversion factor: 1 metre = 3.28 feet  
 \*\* conversion factor 1% MoS2 = 0.5999 % Mo

Of the five drill holes above, ST07-54 and ST07-56 are located in the higher grade area. These two drill holes, combined with previously released holes in this area, continue to outline an area significantly higher in grade than the average grade reported in the NI 43-101 inferred resource estimate of 101.6 million tonnes grading 0.067% Mo or 0.112% MoS<sub>2</sub> as prepared by Watt, Griffiths & McOuat July 2007.

The company is finalizing this year's exploration drill program and expects to core drill a minimum of 40,000 metres in 2008. The 2008 program is designed to significantly expand the currently known and sizeable resource. As well, the 2008 exploration program will focus on further resource definition of the new high grade zone discovery.

## HY LAKE HITS HIGH-GRADE GOLD

Hy Lake Gold Inc. [HYLK-CNQ; HYK-Frankfurt] reports initial drill results from 42 exploration drill holes recently completed at its west Red Lake property package in northwest Ontario, including the Rowan property optioned from Red Lake Gold Mines, a general partnership of Goldcorp. Inc. [G-TSX; GG-NY] and

Goldcorp Canada Ltd.

The results confirm the potential for gold mineralization at depth with drill holes intercepting mineralization as deep as 525 metres downhole. Highlights include 22.54 grams gold/tonne over 2.8 metres, including 118.54 grams/tonne over 0.50 metres as well as 58.40 grams/tonne over 0.50 metres, 67.30 grams/tonne over 1.0 metre and 15.68 grams/tonne over 1.0 metres in three separate veins.

Off the Wire

## AMERA REPORTS COCHA ASSAYS

Amera Resources Corp. [AMS-TSXV; AJRSF-OTC; OAY-Frankfurt] reports results for nine diamond drill holes totaling 1,321 metres from its Phase II diamond drilling program on the Central Cocha copper-silver zone on its 100%-owned Cocha Project located in Junin Department, central Peru. Highlights are tabled at right. The most significant drill hole intercept from the 2007 Phase II program includes 37.9 metres averaging 3.61% copper and 38.2 grams silver/tonne in vertical hole CO-07-20, up-dip from mineralization intersected in CO-06-03.

"These results confirm the high-grade nature of the copper-silver mineral-

ization at the Central Cocha zone," stated Nikolaos Cacos, president/CEO. "Our focus at Cocha will be to further expand the known high grade copper zones and drill test new targets on the project." The Phase II drill program will resume once additional permitting, road and drill pad construction have been completed, and will test the South Cocha copper-silver zone in addition to definition drilling on the Central Cocha Zone.

Meanwhile, Amera is planning IP geophysical studies to define outcropping targets at depth. The portion of the Phase II drill program reported here was designed to further delineate the extent of high-grade copper-silver mineralization intercepted in drill hole CO-06-03 (30.23 metres of 2.67% copper and 24.1 grams silver/tonne and drill hole CO-06-02 as well as in surface trenching (80 metres averaging 0.80% copper and 10 grams silver/tonne. As well, six holes were drilled to test the northwest extent of the Central Cocha (Discovery Outcrop) trend over an additional 600 metres of strike length. The Phase II drill program demonstrates the complex nature of the stratabound copper-silver mineralization at Central Cocha and the lenticular shape of the mineralized bodies. To date, six diamond drill holes (CO-06-01, CO-06-02, CO-06-03, CO-07-12, CO-07-17 and CO-07-20) have been drilled along a single northeast-oriented fence to outline the geometric shape and size of the discovery outcrop area of the Central Cocha Zone. ■

DRILL HOLE	FROM (m)	TO (m)	INTERVAL (m)	COPPER %	SILVER g/t
CO-07-12	25.70	28.70	3.00	0.27	6.6
CO-07-12	86.95	101.25	14.30	0.21	3.5
CO-07-13	45.70	48.20	2.50	0.22	3.3
CO-07-14	44.50	46.00	1.50	1.29	40.3
CO-07-14	66.20	66.80	0.60	0.91	2.1
CO-07-15	78.15	83.30	5.15	0.16	3.3
CO-07-15	119.65	122.08	2.43	0.17	5.9
CO-07-16	55.90	56.30	0.40	0.18	0.8
CO-07-17	71.80	101.50	29.70	0.27	2.8
CO-07-18	NIL				
CO-07-19	NIL				
CO-07-20	8.00	13.05	5.05	0.92	11.3
CO-07-20	23.46	39.13	15.67	2.52	41.7
CO-07-20	39.13	48.18	9.05	0.42	6.3
CO-07-20	54.37	92.30	37.93	3.61	38.2

## NORTHERN STAR DRILLING RESULTS

Northern Star Mining Corp. [NSM-TSXV] has provided further drilling results from its 2007 diamond drill program carried out on its 100%-owned Midway Project, located 16 kilometres west of Val d'Or, Québec. The drilling was oriented to better define mineralization, structures, alteration and rock mechanics in order to advance underground exploration and development.

Hole No.	From-To Metres	Core Length Metres	Grade Gr/T
MM 07-86	219.5 - 317.0	97.5	1.77
Including	288.2 - 307.3	19.1	6.83

Core lengths are fairly close to true width. This section is contiguous to the east (15 metres) of the previous sections reported.

Hole No.	From-To Metres	Core Length Metres	Grade Gr/T
MM 07-85	221.4 - 298.2	76.8	1.55
Including	287.3 - 297.3	10.0	8.51
04-50	174.2 - 261.6	87.4	2.13
Including	254.0 - 261.6	7.6	14.06

"These results continue to demonstrate the continuity of grade and thickness of gold mineralization present on the project. We are encouraged by these results and are anticipating the start-up of our underground exploration and development program, said Michel David, chairman.

## GREAT QUEST ACQUIRES COMIFA CONCESSION

Great Quest Metals Ltd. [GQ-TSXV] has acquired the eight-square-kilometre Comifa gold concession in Mali, West Africa, which is north, west and adjacent to the company's Kenieba gold concession. Great Quest recently announced an increase in the NI 43-101-compliant, inferred mineral resource to 324,000 ounces of gold in the Djambaye 2 gold zone on the Kenieba gold concession. Due to exploration success in the Kenieba concession, company management considers it an excellent opportunity to add to its holdings in the area. ■

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- 600,000 oz. of gold Historical\*\*

\*NI 43-101 compliant June 2007.  
\*\*Not NI 43-101 compliant. Not to be considered a resource. See full disclosure NR January 11, 2007.  
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# Abacus Mining revitalizing Afton Mining Camp

by Ellsworth Dickson



Drilling the Ajax open pits at the Afton copper-gold properties near Kamloops, BC. Photo courtesy Abacus Mining & Exploration Corp.

**Abacus Mining & Exploration Corp.** [AME-TSXV] is advancing four mineral deposits in the Afton Mining Camp near Kamloops, south-central British Columbia. The camp has been a major copper, gold and silver producing area with production dating back over 100 years. Mine production in the Afton area ceased in 1997.

Like many other historic mining camps, the mineral deposits were never completely mined out. Today's high metal prices have ignited renewed interest in the Afton Camp. Abacus acquired its initial land package in 2003 from previous operator **Teck Cominco Ltd.** [TCK.B-TSX] that includes three past-producing mines and numerous copper-gold occurrences. Over 400,000 feet of diamond drilling has now been completed since 2003 on the 8,000-hectare claim group. In addition to the mineral lands, Abacus also acquired a tailings pond, mill and shop buildings, valued at about \$35 million, plus water and access rights. The mill building is just that – a building – and Abacus will acquire and install the required concentrating machinery.

The table summarizes the current NI 43-101 compliant resources on the Abacus Afton Project.

The DM /Audra/Crescent Zone remains open to the east and down dip. In addition, a new NI 43-101 compliant resource estimate is expected to be completed in the

near future. With four mineral deposits, the mining plan would involve several open pit mines. To handle the volume of material, preliminary independent engineering studies have indicated that the existing tailings facilities can be upgraded to hold at least 250 million tonnes of new material.

Drilling programs continue to return encouraging results such as 0.50% copper and 0.31 grams gold/tonne over 432 metres as well as 0.63% copper and 0.53 grams gold/tonne over 118.0 metres, both holes at Ajax West. At Ajax East, drill results included 0.31% copper and 0.21 grams gold/tonne over 263 metres.

Four drills are currently active in the Ajax area. Metallurgical studies have demonstrated a 90% recovery for copper and 85% for gold.

The Abacus Mining land package lies adjacent to the claims held by **New Gold Inc.** [NGD-TSX], which is also developing its own project in the Afton Mining Camp. In October 2007, Abacus signed two letters of intent (LOI) with New Gold Inc. designed to facilitate the development of the Afton Camp that would be beneficial to all concerned. The first LOI is with New Gold and is designed to provide Abacus with the ability to explore areas surrounding the historic Ajax pits 9 km southeast of the historic Afton operation with the intent to design a large scale open pit operation.

Under the LOI, Abacus must spend \$2.5 million on exploration over two years on New Gold's ground which surrounds the Ajax pits and deliver a preliminary economic evaluation within six months of the two-year time frame. If a joint venture is formed, Abacus would hold a 60% interest in, and be the operator of, any open pit operation (to an agreed to maximum pit depth not exceeding 500 metres), while New Gold would hold a 60% interest in, and be the operator of, any underground mining operation. Abacus will retain its 100% interest in the core group of claims in the Ajax area.

The second LOI is a three-way agreement among Abacus, New Gold and Teck Cominco whereby New Gold agreed to ensure Abacus maintains the rights of access granted by Teck Cominco. The LOI provides Abacus with shared use of New Gold's water pipeline, to provide all water necessary for Abacus to develop its Afton – Ajax project and also provides New Gold with access from the Trans-Canada Highway to its New Afton operations over a small portion of the land which Abacus is purchasing from Teck Cominco around the old Afton mill building.

Doug Fulcher, president of Abacus, says plans call for achieving commercial production in 2010 at a rate of between 40,000 and 60,000 tonnes per day. Thomas McKeever was recently appointed chairman. He has an extensive background with major mining companies as well as being chairman of Sempra Metals of London. Mr. McKeever will provide oversight and guidance to financing initiatives and the advancement of the Afton Mining Camp. ■

Zone		Tonnes	Cu %	Au g/t	lbs Coper	oz Gold
DM/Audra/Crescent (0.2% Cu Cut off)	Indicated	28,500	0.295	0.153	185,353,595	140,195
	Inferred	15,800,000	0.281	0.124	97,880,808	62,991
Rainbow (0.2% Cu Cut off)	Indicated	47,100	0.345	.084	358,301,000	127,200
	Inferred	3,000,000	0.245	0.064	16,207,000	6,200
Ajax West (0.2% Cu Cut off)	Inferred	147,269,070	0.3647	0.2296	1,184,081,088	1,087,129

## CANADIAN IMPERIAL VENTURE TO DRILL SHOAL POINT, NEWFOUNDLAND

Canadian Imperial Venture Corp. [CQV-TSXV] reports that transportation of the Nabors #45 Rig from Alberta to Shoal Point, Newfoundland, is underway. The company is a Newfoundland-based independent oil and gas company with exploration and development acreage onshore and offshore in Western Newfoundland.

The rig will be used to drill the Shoal Point 2k39 well, a directional hole from an onshore surface location on Shoal Point to an offshore target under Port au Port Bay on Exploration Licence 1070. The well will be drilled as a 'tight hole' meaning that access to information will be restricted.

Information provided by the Operator, Shoal Point Energy Ltd., indicates that over 60 trucks from Newfoundland and elsewhere on the East Coast were mobilized by Hunt's Transport Ltd. to Alberta for the rig move. Approximately 15 trucks per day have been loaded to travel to Newfoundland. Barring weather-related delays, rig-up on location is anticipated to start around mid February and will take approximately six days.

Drilling design and program management is being conducted by Dragon Lance Management Corp. of Alberta under the direction of Steve McIntosh.

In a separate development, Canadian Imperial Venture entered an agreement with PDI Production Inc. and Gestion Resources Ltd. (collectively referred to as PDIP), and Shoal Point Energy Ltd. for the disposition of its interests in Garden Hill North and Garden Hill South, Newfoundland. The consideration for the disposition is a \$4.7-million payment from PDIP. In addition, CIVC has granted to PDIP a non-exclusive perpetual licence in relation to its intellectual property in consideration of an annual fee of \$25,000 as well as an additional \$300,000 as an upfront license fee. ■



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The debate continues as to whether Peak Oil has actually occurred or, as some claim, Abiotic Oil is replenishing reserves

by Grace C. Visconti



# Peak Oil Fact or Fiction?

It was in 1956 that the term 'Peak Oil' was first coined by M. King Hubbert, a geophysicist who worked in a Houston, Texas research lab for Shell Oil. Peak Oil is presumed to occur when "the maximum global petroleum production rate is reached and the rate of production then enters its terminal decline. If global consumption is not eased before the peak occurs, the accessibility of conventional oil will drop and prices will rise."

Hubbert first predicted that United States oil production would peak between 1965 and 1970. This model was termed 'Hubbert's Peak' and has a bell-shaped distribution curve. The graph shows minimal oil production in the 1900s, peaking to its highest point in the 1970s and then declines to its lowest point in 2050.

"The life of an individual well in virtually every field we have found has a peak flow rate and at some point it declines," explains Matthew R. Simmons in an interview, chairman of Simmons & Company International, an independent investment bank broadly specializing in the energy sector since 1974. Simmons is a prominent oil-industry insider and one of the world's leading experts on Peak Oil. Simmons' book, *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*, which was an extensive investigation of oil reserve decline rates, helped raise awareness pertaining to the unreliability of Middle East oil reserves.

Simmons depicts Prudhoe Bay, Alaska, one of the largest

oil fields in North America, measuring approximately 15 miles by 40 miles, as an example of Peak Oil. "For much of the 1980s Prudhoe Bay was producing 1.5 million barrels of oil a day. It is now down to 300,000 barrels per day and will never produce what it did before. Utilizing advanced technology, oil companies can apply a host of enhanced oil recovery techniques. They may recover a total of 12–13 billion barrels when all is said and done. There are many examples like this. Oil fields in the UK and Norway have also reached their peaks at 2.8 and 3.3 million barrels per day respectively."

With the world now using approximately 86 million barrels of oil per day, and consumption growing rapidly in countries such as China and India, 1.4 trillion barrels of proven reserves may vanish quicker than expected once demand outpaces supply. Consistent with experts on the Peak Oil watch, the general assumption is that we will reach a production plateau after 2010.

"Easy oil is over and US \$200 a barrel won't produce any new ground-breaking technologies," insists Simmons. "The oil business is unpredictable. If your underlying base is declining by 8–12% per year, then it's almost impossible to grow supply."

Shrinking discoveries are reflected in the *Oil and Gas Journal's* December 18, 2006 issue where it states that 78 countries produced the world's 72.5 mmb/d crude oil and of those countries, 43 experienced a decline in production from 2005–2006. The average country decline rate was 6.7%. Oil output grew in only 35 countries in 2006 and the average growth was 6.8%. While oil and gas reserves grew minimally during 2007, oil production declined slightly according to the *Oil and Gas Journal* 2007 Special Report.

There have been more disappointments in the last decade where projects turned out to be duds, according to Simmons, but even worse is the industry's avoidance of doing due diligence with their data. Without real numbers from world energy leaders, predicting Peak Oil becomes a guessing game where fiction eclipses fact.

## WHAT ARE THE REAL NUMBERS?

"The industry has not spent a lot of time correlating and testing their theories using recent data. Every time we take on a project, we are rolling the dice. You can't ever know the future. The only thing you can do is get your hands on all of the historical data. What we haven't done in the petroleum industry is look at the numbers. People can't relate to what is really going on," continues Simmons. With no "accurate global fuel gauge" to forecast when Peak Oil will occur, and no early warning radar system," it threatens to strike like a 'Pearl Harbor event.' Predicting it accurately becomes impossible.

Although the industry needs better reporting transparency to ensure data reform, notes Simmons, world oil leaders aren't complying to endorse it. Their reasoning defeats the possibility for transparency with excuses like "it is our confidential data" and "we might suffer a competitive disadvantage." When the demand for oil outstrips the supply, world peace may be at risk. Simmons suggests we are "totally unprepared" and he insists there are "only a small number of people who understand why data reform is important."

The solution may lie in enforcing compliance rules for companies. "If we forced the key oil producers to report quarterly production on a field-by-field basis, then we would be able to verify and scientifically graph their production figures. Only 250 producing fields generate 80% of the world's oil. The Peak Oil concept needs these fields' production statistics to accurately start to chart the data to be certain of Peak Oil production," explains Simmons. Unfortunately, an accurate assessment of the situation cannot be made without a global consensus by the energy industry.

In the unforeseen consequences of Peak Oil lies a crucial stage that Simmons calls 'the gap.' This gap refers to how long it will take us to adapt: shifting our habits by relinquishing our addiction to oil; the time span available to create energy alternatives and implement them; and the preparation of this transition for humanity on finan-

Proved Oil Reserve at End 2006*			
	thousand million tonnes	thousand million barrels	share of total
North America	7.8	59.9	5.0%
South & Central America	14.8	103.5	8.6%
Europe & Eurasia	19.7	144.4	12.0%
Middle East	101.2	742.7	61.5%
Africa	15.5	117.2	9.7%
Asia Pacific	5.4	40.5	3.4%
<b>Total World</b>	<b>164.5</b>	<b>1208.2</b>	<b>100.0%</b>
Canadian oil sands	26.5	163.5	
Proved Reserves & Oil sands	191.0	1371.7	
* Proved reserves of oil: generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions.			
Source: BP Statistical Review of World Energy June 2007.			

cial and social levels. The time factor makes 'the gap' the most dangerous stage of our transition. "I simplistically refer to the gap as the clash between oil demand's insatiable growth and oil supply once production starts to decline. Ramifications of the gap will create wars because there is not enough oil to go around," explains Simmons.

"If we do not prepare for the transition, the chaos we face will be unimaginable," says Simmons. "The tragedy is that the data does exist, but world leaders and energy agencies are not concerned or angry enough to demand accurate numbers. We are too trusting. Every year we take for granted this lack of data and assume there is no reason for concern." Although we will never run out of oil, there is a risk that world oil production may dwindle to only 60–65 mmb/day, which is inadequate to meet today's demand.

## ABIOTIC OIL

Contrary to Peak Oil is the theory of abiogenic petroleum origin. Abiotic Oil theory states that natural petroleum is forming from carbon deposits deep in the Earth. The presence of hydrocarbons in many locales presupposes that there may be more petroleum on Earth than realized, possibly originating from carbon-bearing fluid that migrates upward from the mantle. Russian and Ukrainian scientists developed this



theory in the former Soviet Union during the Cold War. Nikolai Kudryavtsev, founder of the abiogenic theory, obtained a Dr.Sc. in Geology and Mineralogy in 1936 from the Leningrad Mining Institute.

Kudryavtsev proposed that petroleum is found in crystalline or metamorphic basement rocks or in sediments overlying them and that oil pooling in sedimentary strata is often related to fractures in the basement rocks directly below.

Kudryavtsev's Rule stipulates that "any region in which hydrocarbons are found at one level will also have hydrocarbons in large or small quantities at all levels down to and into the basement rock. Thus, where oil and gas deposits are found, there will often be coal seams above them. Gas is usually the deepest in the pattern, and can alternate with oil. All petroleum deposits have a capstone generally impermeable to carbon's upward migration, and this capstone leads to the accumulation of the hydrocarbon."

Examples of Abiotic Oil deposits are exhibited in: the Ghawar supergiant oil field (Saudi Arabia); the Panhandle Field in Kansas (United States); the Tengiz Field (Kazakhstan); the White Tiger Field

(Vietnam); and many others. Kudryavtsev concluded that commercial accumulations are found where impermeable zones overlie permeable ones.

H. Stewart Edgell presented an abstract based on a geological study done in 1992 called Basement tectonics of Saudi Arabia as related to oil field structures.

Edgell clarifies the abiotic theory: "These oil field structures are mostly produced by extensional block fault in the crystalline Precambrian basement along the predominantly N-S Arabian Trend which constitutes the 'old grain' of Arabia. This type of basement horst, which has been periodically reactivated, underlies the world's largest oil field, Ghawar, and other major oil fields."

The Abiotic Oil theory is also presented by co-authors Dr. Jerome R. Corsi and Craig R. Smith in their book *Black Gold Stranglehold: The Myth of Scarcity and the Politics of Oil*. Corsi received a Ph.D from Harvard University in political science in 1972 and has written many books and articles. Smith is an expert in tangible assets including oil and precious metals. Both write for WorldNetDaily.

Their book states that Americans con-

sume more than 25% of the world's oil, but have control over less than 3% of its proven supply. This unfairly puts them in a 'stranglehold of supply and demand' by those controlling oil supplies. According to Corsi and Smith, there are correlations between high gas prices and the increasing wealth of those who control the supply of oil. The economies of many countries are based on the premise that oil is non-renewable so, if this theory fails, so will their economies. If the abiotic theory became accepted as fact, "then nations would have to become more diversified in their economic structure," explained Smith.

The Peak Oil theorists are stuck on what logicians call 'the fallacy of composition.'

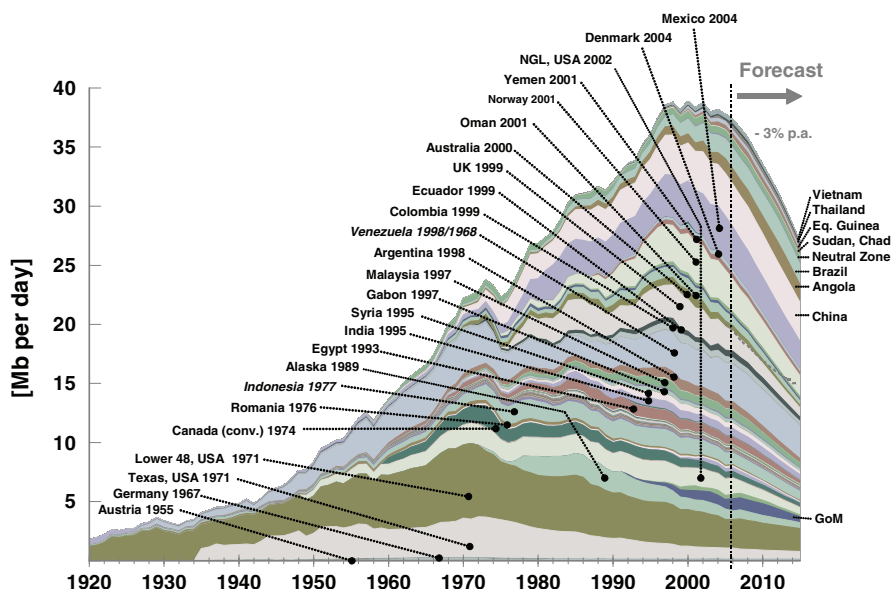
This is a logical assumption. "If the parts are such then the whole is as well," explains Corsi. "If a part is one way (if one oil well depletes), they see all the wells in the world deplete. It means eventually, we run out of oil. But there are wells that have not been depleted."

Peak Oil theorists have no explanation as to why oil can be found at great depths beyond where biological-based oil is normally found. Corsi disagrees with Matt Simmons' debate on Peak Oil. In an interview with *Resource World* magazine, Corsi says, "Matt Simmons says that oil is going to run out because it is biological. An intrinsically un-testable thesis is not science. It may be a tautology, a logical equivalent, for example: 'I know it's going to run out because I know there's only so much.' If he doesn't know how much there is, then he doesn't know it's going to run out."

## SYNTHETIC OIL

Corsi insists the Peak Oil theorists have been wrong since 1956 and he doesn't buy into the doom and gloom either. "The Nazis made synthetic oil out of coal. You wouldn't have known the difference," explains Corsi. They achieved this by using the Fischer-Tropsch process which occurs when a catalyzed chemical reaction in which carbon monoxide and hydrogen are converted into liquid hydrocarbons of various forms. Typical catalysts used are based on iron and cobalt. The principal

Oil producing countries past peak



Ludwig-Bölkow-Systemtechnik GmbH, 2007  
Source: IHS 2006; PEMEX, petrobras ; NPD, DTI, ENS(Dk), NEB, RRC, US-EIA, January 2007  
Forecast: LBST estimate, 25 January 2007

purpose of this process is to produce a synthetic petroleum substitute, typically from coal or natural gas, for use as synthetic lubrication oil or as synthetic fuel.

"The Fischer-Tropsch process is a set of equations that define the catalytic processes where you can generate synthetic oil. Fischer-Tropsch equations are used all over the world. They are using them in Alberta, Canada to get the oil out of the tar sands. The tar sands are not oil. You have to go through a set of steps to extract the oil or to convert what they have into oil. The chemical processes are readily understood. You can produce oil without using biological oil. Industry can also turn shale into oil without any biological process."

#### THE DEBATE CONTINUES

Simmons infers that Peak Oil has never been disproved. Smith disagrees but also insists there should be data. "You need the data. The current data of 1.4 trillion barrels of proven reserves is enough evidence

— the theory is wrong." This doesn't take into account unproven reserves either. It is not known why the Abiotic Oil theory has not widely gained acceptance, given the fact that three drilling projects such as the Jack 2, Eugene Block 330 and the White Tiger oil fields support the abiotic theory.

Smith says, "A perfect example is in September 5, 2006 when Chevron announced that they hit the Jack 2 well which is 170 miles off of the coast of Louisiana. They spent 100 million dollars on it. They drilled 35,000 feet deep and they found a well that produced more than 6,000 barrels of light sweet crude a day and that well is expected to produce a minimum of 15 billion barrels and I have estimates that go up to 50–100 billion barrels. So we don't know how many of these fields are out there, but when we do the exploration, we find them."

"Think about Chevron. They are a for profit organization. Do you think a company like that would explore in the Gulf

of Mexico if they didn't think they could discover oil? They are out there testing our theory and every time they test it, they find more oil. Our theory has been proven by the Russians," explains Smith. "After WWII, Russia adopted the Abiotic Oil theory. They are totally energy independent and have won the energy war."

In a second example, staff reporter Christopher Cooper reported the Eugene Block 330 story in the *Wall Street Journal* (1999). Production began in September 1972 in the Gulf of Mexico off the coast of Louisiana. It peaked at 15,000 barrels per day by 1989. The production fell to 4,000 barrels per day and then suddenly, unexpectedly jumped to 13,000 barrels per day. The reserves were topped up to 400 million barrels rather than the expected 60,000 barrels. The Woods Hole Oceanographic Institution then concluded that Eugene Island 330 reservoirs were possibly being replenished with oil and gas from deeper depths.



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In a third example, the Russians partnered with the Vietnamese to drill deep wells in South China Sea off Vietnam. The White Tiger oil field, which is on the continental shelf of Vietnam, was the largest of seven oil fields discovered. Since they found oil in granite structures, it supports the Abiotic Oil theory, especially when “western oil companies expect to find oil only in sedimentary rock,” as presented in *Black Gold Stranglehold*. This field is roughly three miles deep by about 2.5 miles, and has a fractured granite basement. Extraction is at 280,000 barrels of oil per day.

Simmons is skeptical of the origins of the White Tiger field. “Why is it that there are thousands of oil fields that have not been replenished? One out of 50,000 doesn’t mean anything. The geologists who have studied petroleum geology have all believed that oil was created by some anomaly millions of years ago and that it is a non-renewable resource. You have a hun-

dred years of history that oil fields deplete and once they deplete, they’re over.”

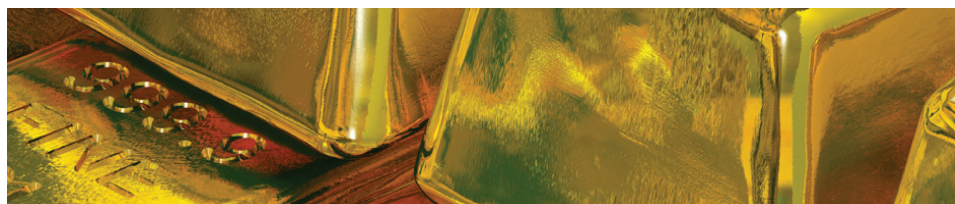
There is an upward trend of crude oil proven reserves since M. King Hubbert predicted oil would peak in the 1970s. Fortunately, the timeline keeps changing since oil discoveries are being made every day with new technology. The Peak Oil and Abiotic Oil followers are entrenched in their stances. But “With no good data,” Simmons insists, “it’s like having a good religious conflict.”

Simmons would say that interpreting data is one way of accurately predicting when Peak Oil will occur (assuming the Abiotic Oil theory is incorrect). However, Corsi and Smith contend that Abiotic Oil is a renewable resource, and is a fact proven by the Russians. Meanwhile, the consumption of oil increases as it is used in all facets of our lives: technology, healthcare, transportation, heating, cooling, lighting, agriculture, production, plastics, printing and so on.

In *Black Gold Stranglehold*, the Peak Oil versus Abiotic Oil debate is clearly defined.

“The fossil-fuel theory assumes we already know everything there is to know about oil. So most available oil has been found and pretty soon it will all be gone. The abiotic theory assumes we have not even begun to develop the right questions, let alone answer them. Moreover, if the abiotic theory is correct, the earth generates oil on a constant basis. There may never be a reason to stop looking for it, no matter how many giant wells we deplete in the process.”

Perhaps the solution to ending the debate depends on making a decision to enforce accurate reporting by all oil producers. This data should be presented by energy industry leaders worldwide and an international roundtable discussion organized. Is Peak Oil fact or fiction? The answer is unknown. ■



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# Oilexco's well-oiled North Sea cash machine

by James West

**Oilexco Inc.** [OIL-TSX, LSE] has become a bit of a Canadian hydrocarbon darling of late, morphing gracefully from junior explorer into mid-tier producer. The disciplined and methodical deployment of capital that has become the company's trademark has got both individual and institutional investors smugly satisfied with the share price appreciation, which recently touched a high of \$16.44 back in November last year.

It looks like its going to be heading straight north again, as increased institutional attention is attracted by the liquidity and growth potential.

In February, the company updated shareholders on its activity in its 40%-owned Huntington Prospect in the UK Central North Sea. Oilexco's partners in the discovery are Altinex Oil (UK) Ltd. (20%), E.ON Ruhrgas UK Exploration and Production Ltd. (25%), and Carrizo Oil and Gas, Inc. (15%).

The partnership identified at least 452 feet of oil column that could be just a minimum as the crest of the structure has not yet been drilled.

In December, Oilexco also participated in the drilling of the Mallory 22/14a-7 exploratory well targeting oil in Upper Jurassic Fulmar sands. The 22/14a-7 well is located four miles northeast of the company's Huntington oil discovery in the adjacent Block 22/14a. Oilexco participated in this well by paying 54% of the drilling costs for a 27% interest in all zones below the Lower Cretaceous Chalk to evaluate a possible extension to its Huntington Fulmar oil discovery.

"To further delineate the extent of the reservoir, additional appraisal of the Huntington Fulmar oil accumulation is being planned, using one of Oilexco's two long-term contracted semi-submersible drilling rigs during the second half of 2008," the firm said.

The 22/14a-7 well successfully encoun-

tered Upper Jurassic Fulmar sands with an apparent oil/water contact within 12 feet of elevation to the apparent oil/water contact intersected by the Huntington 22/14b-8 appraisal well. This indicates the oil accumulations at Mallory and Huntington are possibly common. Further appraisal drilling is necessary to evaluate and delineate the extent and commonality of the oil accumulation.

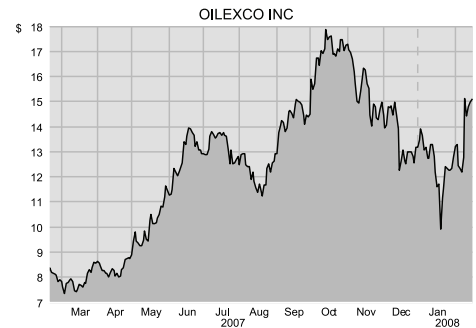
Arthur Millholland, president/CEO, commented, "The continued success at Huntington represents one of the most exciting developments in the UK North Sea in recent years. Whilst Huntington is one of a number of appraisal, development and exploration projects that Oilexco is progressing in 2008, the size of the discovery offers significant upside potential to the company and we are pleased that the development studies are being rapidly progressed."

Oilexco has been consistent in reliably adhering to their corporate strategy, and conveying that strategy to its shareholders. They have demonstrated the ability to remain agile as they grow, ordering subsea equipment in anticipation of future discoveries, and focusing on maximizing their knowledge of the geology into which they sink exploration dollars prior to spending money on development drilling.

For example, on their Brenda Field, they drilled 14 appraisal wells with the result that their shareholders and bankers have full confidence that they know the field reservoir and can deliver what they promise.

Key to their rapid growth has been their ability to remain largely in control of their destiny as they succeed by signing long-term contracts with drilling vessels, meaning they can drill when and where they want to without being subject to rig availability delays – a constant source of aggravation for other companies.

The company leapt into the public eye



last year with the acquisition of interests in the Balmoral, Glamis and Sterling oil fields, which made them a North Seas facility operator.

The company has been able to execute its aggressive growth strategy by accessing relatively cheap capital in the form of a US \$500 million credit facility from a banking syndicate led by the Royal Bank of Scotland.

"The increase in debt capacity provides us the financial means to significantly increase our production over the next several years", said Millholland. "It allows us to quickly move from discovery to production, which is a key part of our strategy."

Oilexco is an oil and gas exploration and production company active in the United Kingdom. Oilexco's producing properties, exploration and development activities are located in the UK Central North Sea, specifically in the Outer Moray Firth and Central Graben areas. Oilexco operates in the United Kingdom through its wholly owned subsidiary, Oilexco North Sea, a company registered under the laws of England and Wales. The company has 218.7 million shares issued and outstanding. ■

*James West is the publisher of the Midas Letter, a financial advisory service that identifies opportunities and risks to investors active in the small cap resource sector. Visit the Midas Letter online at <http://www.midasletter.com>.*



## Developments in Alternative Energy

by Joel Bainerman

### No more power cables or batteries required

Scientists at MIT have developed a new technique that can transmit power wirelessly. The researchers lit a 60-watt light bulb from a power source 2 metres away with no physical connection between the source and the appliance. The researchers have called their concept 'WiTricity,' as in wireless electricity.

MIT physicist Marin Soljacic began thinking years ago about how to transmit power wirelessly, so his cell phone could recharge without being plugged in. Scientists have pursued wireless power transmission for years – notably, eccentric genius Nikola Tesla, who devoted much energy toward it roughly a century ago.

Soljacic and his colleagues devised WiTricity based on the notion of resonance. One well-known example of resonance can be observed when an opera singer hits the right note causing a champagne glass to resonate and shatter.

Two objects resonating at the same frequency tend to exchange energy efficiently, while interacting weakly with objects not resonating at the same frequency. Instead of sound, the MIT physicists focused on magnetic fields. Most common materials interact only very weakly with magnetic fields, so little power would get wasted on unintended targets.

The scientists designed two copper coils roughly 20 inches (50 centimetres) in diameter that were specially designed to resonate together. One was attached to the power source, the other to a light bulb. The practical demonstration of their earlier theoretical work managed to power the light bulb even when obstacles blocked the direct line of sight between the source and device.

### Tropical corn will create better biofuels

When University of Illinois crop scientist Fred Below began growing tropical maize (the form of corn grown in the tropics) when he was looking for novel genes for the utilization of nitrogen fertilizer, he was hoping to discover information that could be useful to American corn producers. Now, that maize itself may become the most efficient U.S. biofuel crop.

Professor Below's research shows that tropical maize, when grown in the Midwest of the U.S., requires few crop inputs such as nitrogen fertilizer because it does not produce ears. It also is easier for farmers to integrate into their current operations than some other dedicated energy crops because it can be easily rotated with corn or soybeans, and can be planted, cultivated and harvested with the same equipment U.S. farmers already have.

Also, tropical maize stalks are believed to require less processing than corn grain, corn stover, switchgrass, *Miscanthus giganteus* and the scores of other plants now being studied for biofuel production. What it does produce, straight from the field with no processing, is 25% or more sugar – mostly sucrose, fructose and glucose.

"Corn is a short-day plant, so when we grow tropical maize here in the Midwest, the long summer days delay flowering, which causes the plant to grow very tall and produce few or no ears," he points out. "Without ears, these plants concentrate sugars in their stalks. Those sugars could have a dramatic affect on Midwestern production of ethanol and other biofuels."

According to Below, Midwestern-grown



U of Illinois doctoral student Mike Vincent, left, holds a stalk of regular hybrid corn and compares it to a stalk of tropical maize held by U of Illinois Professor of Plant Physiology Fred Below. Tropical maize can easily grow to 14 or 15 feet tall, compared to

the 7-1/2 feet that are average for conventional Midwest corn. Photo courtesy of University of Illinois at Urbana-Champaign.

tropical maize easily grows 14 or 15 feet tall compared to the 7.5-foot height that is average for conventional hybrid corn.

He explains, "We found that these plants build up to a level of 25% or higher of sugar in their stalks. This differs from conventional corn and other crops being grown for biofuels in that the starch found in corn grain and the cellulose in switchgrass, corn stover and other biofuel crops must be treated with enzymes to convert them into sugars that can be then fermented into alcohols such as ethanol."

Storing simple sugars also is more cost-effective for the plant, because it takes a lot of energy to make the complex starches, proteins, and oils present in corn grain. This energy savings per plant could result in more total energy per acre with tropical maize.

Tropical maize also requires much less nitrogen fertilizer than conventional corn, and that the stalks actually accumulate more sugar when less nitrogen is available. Nitrogen fertilizer is one of major costs of growing corn.

The tall stalks of tropical maize are so

full of sugar that producers growing it for biofuel production will be able to supply a raw material at least one step closer to the end product than are ears of corn.

## Energy from nothing?

It sounds too good to be true – not to mention the fact that it violates almost every known law of physics, but British scientists claim they have invented a revolutionary device and built a working model that seems to create energy from virtually nothing. Their so-called ‘thermal energy cell’ could eventually be fitted into ordinary homes, halving domestic heating bills and making a major contribution towards cutting carbon emissions.

The system, developed by scientists at a firm called **Ecowatts**, involves passing an electrical current through a mixture of water, potassium carbonate [potash] and a secret liquid catalyst, based on chromium. This creates a reaction that releases an incredible amount of energy compared to the amount put in. When the reaction takes place in a unit surrounded by water, the liquid heats up which could form the basis for a household heating system.

Even the makers of the device are at a loss to explain exactly how it works, but skeptical independent scientists carried out their own tests and discovered that the 12-inch x 2-inch tube really does produce far more heat energy than the electrical energy input.

The device seems to break the fundamental physical law that energy cannot be created from nothing, but researchers believe it taps into a previously unrecognized source of energy, stored at a

sub-atomic level within the hydrogen atoms in water.

## Israeli Energy Towers not only create electricity, but reverse global warming

The Israeli inventors call it an Energy Tower and they say it could become a major source of cheap electricity. The project, headed by Professor Dan Zaslavsky of the Department of Agricultural Engineering at the Technion – Israel Institute of Science, explains that it is a tall tower – 1,000 yards in height and 400 yards in diameter – located somewhere hot and dry with a source of water at the ready, either the sea, brackish estuarine, or drainage water.

In this concept, water is used to cool the air at the top of the tower whereby the heavier cooled air sinks downwards, gathering speed as it falls, finally powering turbines at the tower’s base. Put simply, it uses the principle of convection – warm air rises above cool air.

According to Zaslavsky, the basic tower design could be easily modified to incorporate facilities enabling desalination, producing fresh water reserves at only half the cost of existing desalination technologies. Such fresh water reserves could then be used for the production of biofuel feedstocks such as sugar, or used in fish farming, a remarkably energy efficient form of agriculture.

“We can produce cheap desalinated water, we can irrigate the desert, we can produce biofuel and we can boost aquaculture,” says Zaslavsky.

He has calculated that the towers may actually be able to reverse the mechanism of global warming. “There is a natural pro-

cess by which the earth cools itself known as Hadley Cell Circulation. This naturally happens mostly over the equator, where air is already humid, but if we find a way to humidify desert air, this global cooling process can occur over desert latitudes too. And the energy towers work by doing exactly that by sucking in hot air and releasing cool air.”

## Hydrogen + bacteria = the ideal form of renewable energy

Most hydrogen, available today, is produced by expensive processes that require the burning of polluting fossil fuels, such as natural gas. Now scientists at Penn State University have developed a method that uses on bacteria in a specially designed reactor that can efficiently produce hydrogen fuel from any type of biodegradable organic matter.

The researchers devised a method of hydrogen production that combines electron-generating bacteria and a small electrical charge in a ‘microbial electrolysis cell’ to belch out hydrogen gas.

The scientists grew bacteria from soil or waste water in cells modified to increase bacterial growth and electrical current generation. Using acetic acid, a common waste product of industrial fermentation, the reactor generated hydrogen gas at efficiencies up to 99% of the theoretical maximum yield. This process produces 288% more energy in hydrogen than the electrical energy that is added to the process.

Using this process, which they have christened electrohydrogenesis, efficient and sustainable hydrogen production is possible from any type of biodegradable organic matter. ■



# Veteran renewable energy provider charts new future in biogas production

by Joel Baineman

Not many companies in the alternative energy business have been around as long as Portsmouth, New Hampshire-based **Environmental Power Corp.** [EPG-NASDAQ]. Since 1982 it has been developing and operating hydroelectric plants, municipal waste projects, waste coal-fired generating facilities and clean gas generation and energy recovery facilities.

Its wholly-owned subsidiary, Microgy, is a developer of renewable energy facilities for the production and commercial application of methane-rich biogas from agricultural and food industry wastes. The biogas can be used to produce pipeline-grade methane or marketable biogas, liquefied natural gas (LNG), renewable electrical energy or thermal energy, as well as other useful by-products. Microgy's systems utilize European biogas production technology to which it owns the North American license.

Microgy's business strategy is to concentrate on developing large-scale facilities utilizing an ownership model: the company constructs, owns and operates the facility, either on its own or with one or more financial or operational partners, and profits from the ongoing sale of pipeline-grade methane or biogas produced by the facility.



The Huckabay Ridge Project in Stephenville, Texas is the largest renewable natural gas plant in North America, if not the world. Photo courtesy Environmental Power Corp.

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Biogas is produced by bacteria in manure that consume organic material in the absence of oxygen. By adding substrate – such as waste grease or food processing by-products, bacteria become more active and gas production is boosted substantially.

In Wisconsin, Microgy has built three facilities in conjunction with Dairyland Power Cooperative, an electric cooperative utility, whereby the biogas from these projects is used to generate electricity that is interconnected to Dairyland's power grid.

This past December the company broke ground for its biogas plant at the JBS Swift beef processing facility in Grand Island, Nebraska. The plant will generate biogas to offset a portion of the facility's natural gas. JBS Swift is the largest beef processing company in the world.

Microgy will construct, own and operate the renewable energy production facility and sell its gas to JBS Swift pursuant to a 15-year purchase agreement. The facility will use proven anaerobic digester technology to convert animal waste and other by-products of the JBS Swift plant into a methane-rich biogas to be used as fuel in the plant's existing boilers.

At capacity, the facility is expected to generate 235,000 MMBTU per year – the energy equivalent of 1.7 million gallons of oil – and will offset approximately 25% of JBS Swift's annual purchase of natural gas. In addition to reducing the plant's dependence on fossil fuels, JBS Swift will be able to reduce the land application of organic waste materials from its operations.

"The meat processing industry represents an important market for our co-digestion systems to produce renewable biogas," said Rich Kessel, CEO of Environmental Power.

The biogas plant is expected to be operational in the fourth quarter of this year.

Environmental Power's Huckabay Ridge Project in Stephenville, Texas is the largest renewable natural gas plant in North America, if not the world. It generates methane-rich biogas from manure and other agricultural waste. The purified biogas, called Renewable Natural Gas (RNG®), is generated by Environmental Power's subsidiary, Microgy, and is a branded, renewable,

pipeline quality methane product.

Huckabay Ridge consists of eight anaerobic digesters that extract methane-rich biogas from waste to produce energy that is cost-effective, clean, reliable and domestic and it also helps farms and businesses responsibly manage the wastes they generate. Biogas is produced by bacteria in manure that consume organic material in the absence of oxygen. By adding substrate – such as waste grease or food processing by-products, bacteria become more active and gas production is boosted substantially. The captured biogas is a versatile energy source that can be used to produce heat, power generators, or produce RNG.

The gas produced by Huckabay is shipped via the Enterprise natural gas pipeline to the Lower Colorado River Authority, which has

agreed to purchase the RNG output of up to 2,000 MMBTU (a thousand thousand BTUs) per day through September 2008. Starting October 1, 2008 all the RNG output will be sold to Pacific Gas and Electric under a 10-year agreement to purchase up to 8,000 MMBtu of pipeline quality renewable natural gas daily from Microgy's facilities. The Huckabay Ridge facility and other announced projects in California will fulfill the 8,000 MMBtu/day target. It has been delivering pipeline quality gas to Lower Colorado River Authority (LCRA) since April of 2007.

From an investment perspective, Environmental Power Corp is attractive. The company had sales of \$53 million and losses of \$14.1 million. Its stock is currently trading at just above its 52-week low of \$3.62 at \$4.97 – down from \$9.34. ■

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## Mackay School of Mines Centennial Celebration

April 20-26, 2008

by Jeanne Ainslie

The Mackay School of Mines,  
Reno, Nevada. Photo  
by James Taranik.



The Mackay School of Earth Sciences and Engineering at the University of Nevada in Reno, is commemorating their Centennial of the Mackay School of Mines with a week of celebratory events on and off campus. Among the many highlights are tours of Virginia City and geological tours of the Comstock Lode, where John Mackay, an Irish immigrant, and one of the four Bonanza King developers of the Comstock Lode in Virginia City in the 1860s, made his fortune.

In 1906, the family of John Mackay presented the University of Nevada with a monetary gift that enabled the construction of the historic Mackay School of Mines building. Although a mining school was organized in 1888 and instruction in mining was taught in Nevada since 1882; the year 1908 marks the true beginning of the Mackay School of Mines. On the dedication day, June 10, 1908, a state holiday was declared by the Governor of Nevada, and people traveled on horseback and in wagons from all over the state to attend the festivities.

A bronze statue of John Mackay by sculptor Gutzon Borglum, who is famous for creating Mount Rushmore, stands in front of the Mackay School of Mines building. Inside the building, the Geology Museum, established in 1906, houses collections that include Mackay family silver samples that are valuable for illustrating the history of mining in Nevada and for teaching and research.

As part of the Centennial Celebration, historian Holly Walton-Buchanan has written a commemorative book on "100 Years

of Leadership and Excellence." A commemorative one-ounce silver medallion, minted at the Carson City Mint, features the John Mackay statue.

In 2004, the Mackay School of Mines was reorganized as a school within a new College of Science at the University of Nevada and became the Mackay School of Earth Sciences and Engineering with Dr. James Taranik as its first Director. Today, there are about 360 undergraduates at the Mackay School of Mines – 55 mining engineers, about 50 geological engineers, with the balance comprising geologists, geophysicists, hydrogeologists and geochemists. In 1908, Mackay had less than 10 students enrolled; in 2008, Mackay will graduate, with the hydrology and hydrogeology program, about 200 students.

Mackay graduates are in high demand since the minerals and energy industries are currently enjoying their greatest expansion the last three decades. In a recent interview with Dr. Taranik, Director of the Mackay School of Mines, when asked if the demand for mining engineers still exceeds the supply four to one, Dr. Taranik replied, "Yes. Mineral schools will graduate 150-170 mining engineers in 2008, and the demand is for 350-400 mining engineers nationally – it's even greater globally."

"There are 10 accredited mining engineering programs in the U.S. and that's down from about 25 some 20 years ago. The Society of Mining Engineers is working on a task force to determine the supply and demand of engineers in the minerals industry. One of our recommendations to

stabilize the supply from academic institutions is to create a source of federal funding that would help sustain these programs under the *Energy and Mineral Schools Reinvestment Act* that will provide the resources to the remaining 23 mineral and energy schools to maintain those schools and produce the people needed by our industry to compete in the world marketplace. If this act comes to fruition, that would provide not only funding for four-year universities, but also community colleges, and specialized colleges. We had to replace financing from the U.S. Bureau of Mines that used to fund mineral schools to do research for industry."

As for Mackay's future, Dr. Taranik replied, "We will continue to teach mineral engineering, mineral science, and geologic sciences. One of the areas of study that we're going to expand in the future is the geology and economics of renewable and nonrenewable energy. There are tremendous opportunities for solar and wind energy. In fact, we are looking at programs where we can bring those green energy sources to a lot of the mining activities that we have in the States to use wind and solar energy to supplement the energy used at mines, particularly in remote sites."

Today, the Mackay School of Mines is one of the major mining schools in the United States. The Mackay family's financial support for the mining school initiated a century of innovations, inventions and space-age technology. The next century promises continued leadership in the high-tech world of mineral exploration and new possibilities in renewable and nonrenewable energy. ■

# The Mystery of Santa Barbara

## — did the patron saint of miners even exist?

by Ellsworth Dickson



A stained glass depiction of Santa Barbara in San Francisco, California. Photo by Ellsworth Dickson.

Santa Barbara, the patron saint of miners (and later on those who have to deal with fire) ostensibly lived during the reign of the emperor Maximian (305–311 AD). However, in spite of the fact she achieved sainthood and festivals are still held today in her honour, she may not have actually existed. By assembling a great deal of information about this legendary martyr, we can distill it down to the following.

Barbara, the only child of Dioscurios, a high-ranking wealthy man, lived in Nicromedia, capital of the Roman province of Bithnia (Asia Minor – today's Turkey), although some sources say she lived in Syria. Her father sent her to the best schools and to seek knowledge about the Roman-Greek gods. As it happened, Barbara grew into an exceptionally beautiful woman and many men sought her hand in marriage, but it was not to be. Her father kept her in a luxurious tower, but while away on a trip, Barbara began to receive Christian teachings from a priest and was baptized. While away, her father had commissioned a bathhouse to be built for her so she would not have to visit the public baths. Now a Christian, Barbara instructed the bathhouse builders to install three windows to honour the Holy Trinity, instead of the planned two windows. She also removed her own pagan images and replaced them with crucifixes.

When her father returned and found his daughter to be a Christian, he flew into a rage. She ran away and hid in a cave, but was betrayed by a shepherd and her father took her before the local prefect, Martinianus, who arrested her. Of course he found her guilty of heresy and had her tortured. Incredibly, her torture wounds healed overnight. The prefect then commanded her father to behead his own daughter, which he did. This turned out to be a bad idea as her father was struck by lightning on the way home and was killed by this act of divine retribution.

The legend of the lightning bolt resulted in Barbara being regarded as the patron saint in time of danger from thunderstorms, fires and sudden death. After gunpowder was invented, she became the patroness of artillerymen and miners.

None of this story came to light for several centuries and is not noted in early Christian writings which is why the entire legend may be called into question. The New Catholic dictionary states that the story of Barbara's life was composed in the seventh century. It is believed that the first church dedicated to her was built in Istanbul in 900 AD.

According to written records, the relics of Barbara, now a martyr, were transferred to Constantinople, and then 600 years later, were transferred to Kiev, Ukraine, by the

daughter of the Byzantine Emperor Alexius Comnenos, also named Barbara. To this very day, Santa Barbara's relics remain in the St. Vladimir cathedral in Kiev, which certainly bolsters the authenticity of the legend.

Santa Barbara has been loved by Spanish-speaking people for centuries. Indeed, the beautiful coastal city of Santa Barbara, California, was named for the saint when Sebastian Viscaino sailed into the Channel of Santa Barbara on December 4, 1602, and gave it that name because the 4<sup>th</sup> day of December is sacred to the memory of the virgin and martyr. Father Junipero Serra founded the Santa Barbara Presidio in 1782, adding the Mission four years later. The Presidios were military garrisons for the protection of missionaries, established in San Diego, Santa Barbara, Monterey and San Francisco. The accompanying photograph depicts one of the stained glass windows in the church adjacent to the Mission Dolores, San Francisco. Mission Dolores was built in 1791 and has been perfectly restored using donated funds. Those with an interest in history can spend a very interesting time touring the churches, cemetery and exhibits.

We may never know for sure if Santa Barbara existed, but it's a compelling and heart-wrenching legend that continues to live on 1,700 years since her untimely death. ■



## coming events

Cambridge House International Inc. is presenting the **Calgary Resource Investment Conference** April 12-13, 2008 at the Telus Convention Centre, Calgary, Alberta, Canada. As always, there will be dozens of company booths, the world's best speakers and market analysts as well as various workshops for resource stock investors. For more information and registration, go to [www.goldshow.ca](http://www.goldshow.ca). You can also register by phone. In the US and Canada, call 1-877-363-3356. Greater Vancouver Registration Line 604-878-1114 or send a Fax at (604) 687-4726. Pre-registration is free; however, there is a \$25 cost at the door.

The Association of Mining Engineers, Metallurgists and Geologists of the District of Chihuahua in Mexico, and the Federal and State governments, institutions of higher education

and participating companies in the Organizing Committee, invite you to attend the **VII International Mining Conference, Chihuahua 2008 and Expomin-2008**, to be held, on April 23-25, 2008, in Expositions and Convention Center of Chihuahua, Mexico. For more information, go to [ww.conferenciamineria.com/2008/ingles/index.htm](http://ww.conferenciamineria.com/2008/ingles/index.htm) or call 614-419-4624. Email: [Guillermo\\_rose@penoles.com.mx](mailto:Guillermo_rose@penoles.com.mx)

Global Investment Conferences is presenting the **Boston Resource Expo** May 8-9, 2008 at the Hynes Convention Center, Boston, MA. For more information, go to [www.gicevents.com](http://www.gicevents.com) or call Diana Snyder at 305-669-6873. Her Email is [dsnyder@gicevents.com](mailto:dsnyder@gicevents.com)

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**2008**, on commodity investment and trading is back for its third successful year at the Shangri-La Hotel, May 25-28, 2008, Dubai, UAE. For more information, contact Starlina Sequeira Tel: +971 4 709 4600, Fax: +971 4 347 3889. Email: [tarlina.sequeira@terrapinn.com](mailto:tarlina.sequeira@terrapinn.com) Sponsorship and exhibition opportunities: Sofeen Thaker Tel: 00971, Fax: 00971 Email: [sofeen.thaker@terrapinn.com](mailto:sofeen.thaker@terrapinn.com) Marketing opportunities and press relations: Emma Roborh Tel: +971 (04) 7094518

Cambridge House International Inc. is presenting the **Vancouver Resource Investment Conference** June 15-16, 2008 at the Vancouver Convention & Exhibition centre, Vancouver, British Columbia, Canada. For more information and registration, go to [www.goldshow.ca](http://www.goldshow.ca). In the US and Canada, call 1-877-363-3356.

Greater Vancouver Registration Line 604-878-1114 or send a Fax at (604) 687-4726. Pre-registration is free; however, there is a \$25 cost at the door.

Global Investment Conferences is presenting the **Palm Beach Resource Expo** December 7-8, 2008 at the Palm Beach Convention Center, Palm beach, Florida. Home to many of America's wealthiest families and well within the country's top percentage of resident millionaires, Palm Beach boasts an exceptional concentration of active, private investors. It is also part of the rapidly expanding PGA Corridor, a thriving business community bustling with new and established professional firms and financial services. For more information, go to [www.gicevents.com](http://www.gicevents.com) or call Diana Snyder at 305-669-6873. Her Email is [dsnyder@gicevents.com](mailto:dsnyder@gicevents.com) ■



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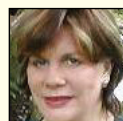
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## Metal prices vs. share prices – two different worlds

by David Duval

With apologies to Charles Dickens, it's probably safe to say that these are the best of times and the worst of times for the global mining industry. However, while the general euphoria associated with higher metal prices (virtually across the board) remains high, a nervousness appears to be developing among established mining companies about the sustainability of their production levels in what most people believe could be a prolonged trend of rising demand.

Some major mining companies including Australia's BHP are calling today's situation a 'Supercycle' – that could last 20 years, a term with which I generally concur. I'm beginning to think BHP's time estimate might prove to be somewhat conservative given the mining industry's inability to replace depleted mineral reserves with new discoveries, a process that can only become more difficult (and expensive) as time goes by.

From a stock market standpoint, investors are generally looking for 'organic growth' the growth rate that a company can achieve by increasing output and enhancing sales which for most mining companies has come to a virtual standstill. In my experience at least, investor scepticism in mining related equities – especially the senior members – is disturbingly high and probably with good reason.

Just out of curiosity, I recently tracked the performance of Barrick and Newmont from the beginning of 2002 when gold traded around US \$280/oz. Newmont shares were selling in the marketplace slightly below US \$20 as was Barrick's. At time of writing Newmont is trading approximately 2½ times higher (\$50.91) and Barrick slightly lower (\$49.80), while the price of gold is at least 3.5 times greater than the 2002 price based on its

recent high of over US \$900/oz. In any realistic market, equities would tend to lead gold rather than the other way around. That being the case, most rational investors are probably asking "what the hell is going on?"

For one thing, capital costs for new mines are rising exponentially – despite government statistics that suggest there's very little inflation in the economy. In addition, permitting and regulatory hurdles imposed by various levels of government, ones that directly impact the timely and economically viable development of new mineral deposits, have in many jurisdictions become even more onerous. You can bet that the escalating cost and subsequent cancellation of the Galore Creek Project in northwest BC had a strong government mandated component which contributed to the high development costs in such a remote area.

A variety of issues beyond the industry's control seem destined to constrain existing and new mine production output well into the future. South Africa's gold mines are getting deeper and more expensive to operate and the diversification of the nation's economy and wealth transfer to its indigenous population has increased energy demand and created power shortages for high energy users such as mines.

These power shortages have forced many of the nation's mines to simply shut down, meaning some companies will miss their production targets. That's hardly a desirable prospect for a listed company whose share price reflects price-earnings ratios that are dictated by its ability to produce gold on time and on budget.

AngloGold-Ashanti may lose 400,000 troy ounces of gold production in 2008 because of rolling blackouts and power

reductions in South Africa which could last into the next decade. Let's face it, when the choice comes down to keeping mining companies supplied with power or the nation's electorate, it's not hard to figure out whose going to win. But pity AngloGold's shareholders who watched in horror as the company's stock dropped almost 15% when news of the power issues became public. The aftermath: a \$1 billion haircut for its market capitalization.

South Africa is not alone in its predicament. Ghana in West Africa is facing similar problems, with power shortages and rationing affecting major gold producers including Newmont and Golden Star Resources. To alleviate the problem (a veritable 'pick your poison' scenario), Newmont got together with three other mining companies, including Golden Star, to source, buy, disassemble and ship an 80-100mw power plant to Ghana. The downside, however, is that the plant runs on expensive diesel fuel rather than cheaper hydro-generated electricity which is bound to negatively impact production costs. And there may be more bad news to come.

Petroleum industry experts Kenneth Deffeyes and Matthew Simmons, both proponents of the Peak Oil theory, believe the high dependence of most modern industrial transport, agricultural and industrial systems on the relative low cost and high availability of oil will cause a peak production decline and possible severe increases in the price of petroleum products. Oil, being a depleting resource like minerals, the theory has some merit – the big question of course being 'when.' Yet politically motivated governments seem intent on pursuing high cost energy options rather than cheaper alternatives such as clean coal and nuclear energy. ■

# Developing the Harper Creek Deposit in British Columbia

## *Initial Indicated copper resource estimate of 3.2 billion pounds*

Yellowhead Mining is a private, Canadian company with a 100% interest in the Harper Creek project, in South Central British Columbia, approximately 90 kilometres North-East of Kamloops. The Harper Creek Project is an advanced copper-gold-silver-zinc exploration project and offers exceptional potential as the largest greenfield volcanogenic sulphide project in British Columbia.

- Located adjacent to railway, highway, power, water and town infrastructure.
- 49,000 metres of drilling at Harper Creek through 2007, with a 50,000 metre program planned for 2008.
- NI 43-101 Indicated resource estimate of 450 million tonnes at 0.32% copper (3.2 billion lb.) and an Inferred resource estimate of 142 million tonnes at 0.33% copper (1.0 billion lb.), using a 0.2% copper cut-off and not including potential future gold and silver values. Metallurgical testing has demonstrated potential gold and silver revenue credits to be in the range of 10%.
- Mineralized envelope greater than 2 kilometres along strike, over 2 kilometres down dip and over 1 km in depth. Resource remains open along strike, down dip and at depth
- Metallurgical testing is ongoing, with results to date producing a very clean concentrate grading 28.8% copper, 4.75 g/t gold and 91.5 g/t silver at a copper recovery of 88%.
- Preliminary pit modelling demonstrates a potential low strip ratio of 1.4:1 over a 20 year mine life.
- A scoping study is underway, with a feasibility study to start in early 2008.
- Numerous additional targets have been identified from airborne geophysics over 9,000 ha.

The company is well-financed having raised over \$13 million. Yellowhead has experienced management and enjoys a favourable mining investment environment in British Columbia.

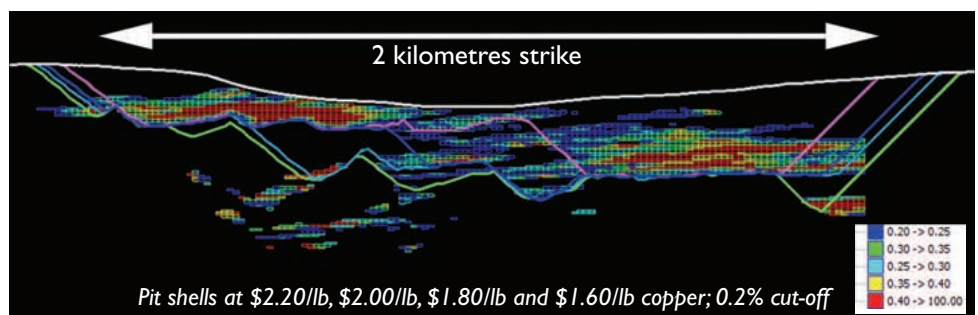


*49,000 metres drilled through 2007,  
50,000 metres planned for 2008*



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