CONFERENCES REPORT

PDAC 2001
Prospectors and Developers Association of Canada
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About 7000 people from more than 70 countries attended this event at the Metro Toronto Convention Centre. It is always a pleasure to attend meetings as well-organized as this one. One reason for success is that PDAC meetings are audience oriented: despite the huge attendance, the technical program had a minimum of concurrent sessions (three maximum) with a total of only 88 papers (several not given). This makes for a less frantic meeting than a typical GAC or CSPG meeting with its myriad presenters on a multitude of topics. Topics and speakers were carefully chosen to be informative and challenging. The Toronto Stock Exchange was the major convention sponsor with 33 additional sponsors at lesser levels. Many consider the annual PDAC meeting as the annual global mining meeting, a view supported by Canada's major international presence in mining.

FORMAT
Fifteen half-day technical sessions made up the formal part of the meeting. Less formal sessions included the 35+ Exchange Forum presentations by mining and related companies. The informal part of the meeting included Core Shack presentations, the Investors Exchange, and the Trade Show, all consistently busy. There were three short courses, two luncheon events, a Student Careers Forum, an Awards Banquet, Mining Night, Gala Evening Dinner, many receptions, and a guest program. Professional registrants packages included the well-organized Convention Program; an Abstracts volume for the 88 scheduled technical talks and 26 Core Shack presentations; and the annual PDAC publication, Exploration and Development Highlights, covering all of Canada, and including a list of 226 international mineral development projects in which Canadian companies have an interest, in 54 countries from Angola to Zimbabwe. New/novel features of the meeting included a speakers corner following technical papers, and the availability of videotapes of all of technical papers for purchase.

MAJOR TECHNICAL SESSIONS
Metals, Minerals and Markets
An opening Sunday afternoon technical session featured papers on each of: gold; platinum, palladium and silver; diamonds; copper; nickel; and zinc. Several speakers mentioned the importance of the United States economic recovery to mineral production/exploration: will recovery take the form of the much-hoped-for V shape, the less desirable U shape, or the dreaded L shape, as has characterized the Japanese economy for the last decade? Whatever recovery model is chosen has a dramatic effect on predictions made. The last 2-3 years have been difficult, but there is cautious optimism that the worst is over.

On gold, although jewelry demand has held up and demand tends to exceed supply, sales by the central banks have more than made up the difference. Barring a major shock, the future looks like the present. There is excitement about platinum group metals (PGMs) where demand exceeds supply, reflected by soaring prices. Canada has many low-grade nickel deposits unsuitable as nickel mines but with PGM potential. Diamonds remain the darling of the exploration community. The United States now consumes about 47% of the highest quality diamond market. Canada is eighth in world production, but by 2006 should be third, after Botswana and Russia. The short-term outlook for copper depends on the nature of the U.S. recovery. Weak demand and low prices are part of the general problem of commodity prices that are those of the 1970s. Of base metals, nickel has fared best. About two-thirds of nickel production is used in making stainless steel, and this market has grown at about 5.5% per year for the past 15 years. Overhanging the market is the enormous volume of Russian nickel-containing scrap material. Zinc is a modern space-age metal with many uses: nevertheless the price has been declining, as for most metals. Although zinc demand is rising at ~4% per annum, for a variety of reasons zinc producers have not had returns to shareholders proportionate to zinc's contribution to the economy, despite a recent 30% reduction in the costs of production. Increasing use of zinc cladding should underlie a rosy future for the metal.

Mining Perspectives
This Keynote Session featured five papers. Continuing problems for the global mining industry are the difficulty of raising capital, the fact that the industry is out of favour, and low commodity prices. One year ago the dot-com mania rocketed the NASDAQ market to a peak over 5000; by March 2001 more than 60% of these gains had been lost in the massive tech stock collapse. So this meant that investors fled the new economy and headed for the safety and comfort of so-called old economy mining stocks? Unfortunately, no. Investors remain skeptical about mining stocks, which collectively, at best, have returned well
below 10% per annum. And mining capitalization sits at less than 1% of
global capital markets. What to do? One
part of an answer in Canada is to make
mining investment more attractive, and
that is the goal of the “super” flow
through-shares program — the 15% non-
refundable tax credit — introduced by
the Government of Canada in October,
2000. This seems to be succeeding:
investment is up, and there was more
media interest at this meeting than usual
recently. Programs such as the “Global
Mining Initiative,” or in Canada “Mining
Matters,” promote mining, showing that
it is an important industry contributing
to the economic well-being of many
countries, and is now being conducted
with minimum environmental disrup-
tion. Consolidation should help keep
excess capacity down, but a key aspect of
consolidation lies in the introduction of
financial discipline. Advice to the indus-
try from a capital source: focus on
returns, learn to live with consolidation,
and manage public perception better!

Although ~13% of world mineral
exploration dollars are spent in North
America; levels of exploration are low
compared to elsewhere because of public
perceptions against mining, the difficulty
of permitting, and political issues such as
the Voisey’s Bay impasse. Recent corpo-
rate priorities have had to focus more on
shareholder returns than on production
growth, and this should be positive in
terms of raising capital. Just before the
meeting, Inco, Cameco and Teck reached
52-week highs in stock prices, grounds
for optimism. In the developing Ameri-
cas, all countries are vulnerable to a U.S.
economic downturn. Brazil may be most
promising for mineral exploration, but
disruptive political developments in
Argentina, Colombia, Peru, and Venezuela
increase the risk level of exploration there.
With the change of government in
Mexico, the future should be brighter.

Australia is a major mining success
story. The government is supportive and
there is a favourable tax regime: thus the
Australian mining and energy industry is
worth about US$90 billion in export
earnings. Some 60% of the world’s
mining computer software comes from
Australia. Australia also supports research
on mining and mineral deposits gen-
erously. Africa is a land of contradic-
tions.

Although ~43% of the world’s gold has
been produced from Africa, the risks for
mining are high, including political
unrest, poverty, civil wars, AIDS, limited/
no infrastructure, and limited geological
information. Yet the prospect of signifi-
cant discoveries that can change the
economic future of individual countries is
high: the Oropa diamond deposit in
Botswana is responsible for ~65% of the
country’s gross domestic product. Mining
may offer the best long term hope for
African prosperity.

New Discoveries and Developments
This full-day session had 13 papers, nine
on properties/mines in foreign locations,
and four from Canada. Two Canadian
papers on VMS Zn-Cu deposits: Persever-
ance, Matagami, Quebec; and Triple 7,
Flin Flon, Manitoba, outlined major new
deposits in these mature camps: nothing
like exploring in your own backyard! The
Hope Bay gold deposit, Nunavut, is a
new discovery in a major Archean
greenstone belt. The high-grade Snap
Lake diamond deposit of the Northwest
Territories is hosted by a nearly flat-lying
kimberlite dyke, an unusual occurrence.
Acquired last year by De Beers Canada,
Snap Lake is due to go into production in
2004 as Canada’s first underground
diamond mine. Most of the nine foreign
papers considered large tonnages, high-
grade/low production cost deposits in
which Canadian-based companies either
are operators or have a strong interest. Six
of those presented are gold deposits, two
in Western Australia including the
Carrosse Dam deposit, projected to yield
an after-tax return on investment of 27%,
and the Wallaby deposit, one of the
largest gold deposits found in Western
Australia recently. Other gold deposits
outlined were Veladero from Argentina;
Rosia Montana from Romania; Julietta
from Russia; and Geita from Tanzania.
Other deposits featured were the Koniam-
bo nickel-cobalt laterite deposit from New
Caledonia; Tambo Grande, a VMS Cu-
Zn-Ag deposit in Peru; and Dairi, a
high-grade zinc-lead deposit in Indonesia.

OTHER TECHNICAL SESSIONS
Mining – Socio-economic
Challenges for the New Millennium
This full-day session scheduled 12 papers;
two were withdrawn. Topics included a
global overview of environmental issues,
sustainability and risk, social challenges,
and examples of how these issues play out
locally. Two presentations stood out: One
was on the great progress made at
Cominco’s Red Dog mine in Alaska, the
world’s largest zinc mine, in working
successfully with native communities,
which now comprise ~60% of the mine
work force. In spite of many setbacks, this
project is a model of mining company-
native inhabitants co-operation, based on
trust. The other presentation considered
public understanding of the mining
industry. Many assumptions have been
wrong here: the public is more supportive
of mining than generally believed.

Focusing on government decision-
makers, local communities, and school-
aged children is likely to be more success-
ful in improving the mining industry
image than costly strategies focussed on
the general public.

Diamonds:
Canada’s New Best Friend
A few highlights from this well-attended
half day session: Precise dating of 70+
Canadian kimberlites shows a predomi-
nantly Jurassic eastern province, a central
Cretaceous corridor, and a western mixed
Precambrian to Tertiary province. How
kimberlite age may relate to diamond
potential is under active study. Micro-
diamonds can be used to predict macro-
diamond content and grade only as part
of the total diamond content, not in
terms of numbers of individual microdia-
monds. Kimberlite prospects should be
evaluated with great care, concentrating
on quality of: the data, geological model-
ing estimates; and risk, low versus
high. In the United States, the 45-54 year-old
baby-boomer generation makes ~26% of
diamond purchases. Although more than
80% of perfumes are sold under a brand
name, only about 13% of diamonds are
sold as brands, so there is considerable
opportunity for brand creation, a strategy
being pursued by De Beers.

PGMs: Exploring for and Mining
These High-tech Precious Metals
With the dramatic increase in PGM
prices there is great interest. Projects
producing PGMs at advanced or renewed
stages of development include the
Stillwater Mine in Montana, where the 22
gm/t combined PGM production is the highest-grade production in the world, and the Bushveld Complex of South Africa, where existing metal mines are being redeveloped as PGM producers. Other areas like Finland and Alaska have potential, but are at early exploration stages. Canada, with one operating mine near Thunder Bay, Ontario (North American Palladium Ltd.) has many prospects, from layered intrusions such as the Muskox Complex in Nunavut and the Fox River Sill in Manitoba, to contact margin settings around mafic/ultramafic intrusions, and certain massive sulphide deposits with PGM enrichment. Here the challenge will be to develop descriptive-genetic geological models/criteria that can reduce the large number of mines/settings/showings to a reasonable number with highest potential. Meanwhile the uses for these metals are growing; prices are predicted to be robust for at least 3-5 years.

**Mining Finance, the New Environment**

The problem of raising capital persists. While returns on invested capital remain at 5% or less, as they are for too many projects (particularly gold, with the low gold price), the industry remains unattractive even with the recent dot-com collapse. Messages delivered include: press on with consolidation, adopt financial discipline, shut down unprofitable production, stop competing with each other and collaborate instead, while seniors consolidate to achieve greater capital market recognition, juniors can explore, better research/market support is needed for most mineral commodities. These suggestions seem reasonable: a common view is that much better returns on invested capital could do a great deal to brighten the image of mining.

**Geophysics; Open Sessions**

Now that deeper targets are sought, geophysical techniques are even more important. Talks discussed techniques, often EM, IP, and others, but sometimes new approaches like 3D seismic and district-scale gravity surveys. Success stories include the discovery in the Matagami camp of the Perseverance Zn-Cu deposit, only 30 m below surface, using geophysical methods to discover shallow magnetic +/- conductive targets; also use of electromagnetic techniques to discover unconformity-hosted uranium deposits in the Athabasca Basin. Open sessions covered all kinds of topics from diamonds in India to mine financing in these difficult times.

**LUNCHEON ADDRESSES**

The Mineral Outlook Luncheon featured an address by Gary Raffe, Managing Director, De Beers Group of Companies, titled "De Beers in the 21st Century." With De Beers becoming a private company on 1 June 2001, controlled by Anglo American, the Oppenheimer family and Debwana (a diamond company owned by De Beers and the Botswana government), De Beers future lies in becoming the choice diamond supplier, reflecting the highest quality and ethical standards. De Beers expects to open diamond retail stores within two years, in partnership with the French luxury goods marketing company, Moet Hennessy Louis Vuitton (LVMH), and will focus on sales and marketing. This should position De Beers as the "major brand name in diamonds. With one of the world’s best known advertising slogans, "a diamond is forever," marketing is well underway.

The PDAC-CIM Luncheon featured an address by Jay Taylor, President and CEO of Placer Dome Inc., titled "Investing in the global mining industry: One company’s perspective." The fact that mining is out of favour is one indication that our society has become separated from the source of its wealth. Gold has lost about 30% of its value in the last 4 years. Copper prices of 80 cents per pound in 1973 are still 80 cents per pound, because of technological improvements: adjusted for inflation, it should sell at $3.35 per pound. Two factors should underlie a better future: 1) These kinds of commodity prices are unsustainable over the long term; and 2) Minerals are crucial to the welfare of developing countries, as well as to maintain our advanced society. Copper consumption can be seen as a quality-of-life barometer: in richest countries, each person "consumes" about 25 pounds of copper, whereas in India, each person gets by with about a third of a pound. In improving the standard of life on this planet, mining has a critical role to play.

**CORE SHACK PRESENTATIONS**

Some 26 mining properties/districts were reviewed in two sessions; 16 were Canadian, including: Diamonds: Buffalo Head Hills Kimberlite District of Alberta. Platinum group elements +/- Ni, Cu, Au: Gayot, Midrim, and Raglan, Quebec; Ferguson Lake, Nunavut; and Torrent, Ontario. Gold +/- Cu, Zn: Morrison, Hearne Hill, and Red Mountain, B.C.; Seebee, Saskatchewan; Watts River, Manitoba; and Vault, High Lake, and Hope Bay, Nunavut. Cu-Zn VMS deposits: Triple 7, Manitoba; and Perseverance, Quebec. Tantalum: Lilypad Lakes, Ontario. These informal core shack presentations, meeting highlights, permit first-hand examination of samples, maps and data, and informal discussion with company representatives.

**EXHIBITS**

The Trade Show had >240 booths representing >200 exhibitors. The PDAC and Noranda-sponsored Investors Exchange had close to 160 booths, many (-136) for the whole meeting, with the remainder exhibiting in either the first or second half of the meeting. Combined with the many Exchange Forum presentations, this format offered opportunities to examine many companies and prospects in detail. One could easily spend all of the meeting in the Exhibits area.

**MORE INFORMATION**

PDAC’s website, www.pdac.ca, has further information on this conference and on all of PDAC’s activities. PDAC can also be reached by e-mail at info@pdac.ca. There may be copies available of the Convention Program, Abstracts volume, and Exploration and Development Highlights, given out at the meeting. Further information on the “super” flow-through shares can also be obtained from PDAC. Information on the video cassettes available of all technical talks at PDAC 2001 can be obtained from PDAC, including how to order these. With the high level of interest in platinum group elements, CIM is planning a new volume on PGEs to be published in 2002, and to be edited by Louis Cabri. More information about this volume can be obtained from the CIM Geological Society’s website: www.cim.org/geosoc.