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***Canada's North - A Diamond In The Rough***  
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# DA'S NORTH: A DIAMOND IN THE ROUGH



PHOTO COURTESY DIA MET MINERALS

**M**ining in the Northwest Territories has traditionally been concerned with gold, silver, lead and zinc. The mining of these metals has accounted for 85 per cent of the total revenue generated by the Territories. Unfortunately, the predicted closure of the Nanisivik lead/zinc mine on Baffin Island within a few years, will negatively impact the area's economy. On the bright side, the Lac de Gras area is offering a new glimmer of hope —with diamonds.

Finding diamonds in the Territories was totally unexpected. Kimberlites, with dimensions measured in the tens of acres, have been discovered, indicating that many more will be found. The hope is that they will be found to have diamond-bearing and wealth producing potential.

Prior to the discovery in 1991 near Lac de Gras, prospectors and geologists had scoured the barren lands of the N.W.T. for over 50 years in search of valuable metals. There are two reasons

## MINING IN THE NORTHWEST TERRITORIES

why past explorers have failed to discover diamond deposits in the Territories. First to blame is nature itself, by obscuring the kimberlites with glacial ice and then a blanket of glacially derived clays, sands and gravels.

Kimberlites, softer than their surrounding crystalline pre-Cambrian bedrock were more easily eroded, and consequently, usually covered with even greater thicknesses of glacial deposits and, often, lakes. Since kimberlite is

rarely exposed, it simply was not found by routine prospecting. Secondly, Canadian geoscientists, for the most part, knew little about diamonds, and believed they only occurred in Africa and other continents. Unaccustomed to diamonds and how they were formed, the exploration fraternity directed their efforts to the more conventional metals common to Canada.

The recognition of the Canadian Shield and its Platforms as potential areas for new diamond fields has resulted in a widespread, unprecedented claim staking and exploration rush. This activity is focused on the Slave Province of the Northwest Territories, although diamond bearing kimberlites are being reported from many other areas of Canada.

It took the ingenuity and perseverance of one small company to test the theory that diamonds could occur in the N.W.T. Primary work was done by the founder of Dia Met Minerals of

Kelowna, B. C., geologist Charles Fipke, who led a team to the Exeter Lake area of the N. W. T., where diamondiferous kimberlite pipes were found. The exploration method used was primarily based on locating diamond indicator minerals in surface samples and tracing these up-ice and up-stream to their sources. Glaciers from the last ice age gouged the tops of exposed kimberlite pipes and carried these diamond indicator minerals, releasing some intermittently in eskers and low lying areas in a smear or trail which extended approximately 450 miles towards the west from Dia Met's claims.

Knowing that kimberlites contain many more distinctive associated minerals than they do diamonds, the search was aimed at this bigger target. And because finding the small kimberlites in such a vast territory was like finding the proverbial needle-in-a-haystack, the search was aimed at the much larger dispersion trails created by the glaciers as they passed over and ground up the kimberlites. In other words, use the very blanket of glacial debris that was obscuring the targets and considered unimportant by previous explorers.

Dia Met completed this exercise from 1988 to 1990— sampling hundreds of thousands of square kilometres of barren land, for a trail of the important indicator metals — garnet, chrome diopside, chromite and ilmenite. The result of their work, of course, is now history. They identified a highly anomalous indicator mineral population near Lac de Gras, approximately 260 km northeast of Yellowknife. However, even armed with significant geochemical information, attempts to interest a partner to fund the next and more expensive exploration phase were unsuccessful — until the data fell into the hands of Australia's largest mining organization, BHP (Broken Hill Proprietary Company Ltd.). A joint venture between the two companies was estab-

lished in 1990 when Dia Met Minerals Ltd. signed an agreement with BHP that called for BHP to fund all exploration, at a minimum of \$2 million (U. S.) per year through to mine feasibility, to earn a 51 per cent interest. In addition they will finance mine construction costs up to \$500 million (U. S.) on behalf of the joint venture.

The first kimberlite was established by drilling in the fall of 1991. The pipe is located under a crater infill lake known as Point Lake, on a peninsula known as Point de Misere which juts out into Lac de Gras. In early 1992 a bulk sample taken from reverse circulation drill holes yielded 101 carats of diamonds from 160 ton of cuttings.



PHOTO COURTESY DIA MET MINERALS

Twenty-five per cent of the parcel was of gem quality and some of these stones weighed one to three carats. This fraction excludes any stones commonly referred to as "near gem." These results were well within the grade and quality of the current producing diamond mines throughout the world.

In the fall of 1992 BHP/Dia Met reported finding nine more diamondiferous pipes near Exeter Lake, 40 km northwest of the original discovery at Lac de Gras. All nine pipes contain diamonds and two of the pipes have had remarkable results. One pipe contained a surface discovery that yielded 140 diamonds, including 23 macro diamonds. The other kimberlite pipe yielded drill core results of 187 dia-

monas that included 55 macro diamonds. Bulk sampling of at least two kimberlite pipes commenced on the property during February, 1993. These bulk sample programs were carried out in a similar manner to that completed at the Point Lake kimberlite during the 1992 winter season.

Two reverse circulation drill rigs were used for the program, which completed during April, 1993. The object was to obtain a minimum of 200 metric tons of kimberlite from each site. Ice conditions permitted drilling operations to continue, and several smaller (approximately 20 metric tons each) samples were taken from other pipes. All the bulk samples are being processed at

Dia Met's plant in Ft. Collins, Colorado. The summer exploration plan for 1993 has been finalized and will concentrate on mapping, sampling, geophysics and core drilling to identify additional diamondiferous kimberlite pipes.

Since diamonds were first discovered in the Northwest Territories, the area is attracting an unprecedented staking rush with close to 40 million acres now staked and still increasing. Since the initial staking by Dia Met, other large and junior companies have flocked to the north. While Dia

Met originally claimed to have staked all worthwhile territory, new macro and micro diamond discoveries are being reported by other companies.

After Dia Met's announcement in 1991, Aber Resources Ltd. and Monopros (DeBeers) began staking large acreages adjoining the discovery property. Aber currently holds varying interests in more than 1.5 million acres of land in the Lac de Gras area, 1.2 million acres of which comprise the Diavik property. Diavik has produced discoveries of 20 kimberlite pipes, including the DHK DO-27 pipe which contains significant quantities of diamonds. Aber plans to conduct further exploration on the property in 1993 following

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with Kennecott Canada inc. Kennecott has reported the discovery of several new kimberlite pipes in the Lac de Gras area on claims in which SouthernEra has an interest. Drill programs began in March and will continue through until breakup sometime in June. Preliminary results from four core holes drilled, indicate the presence of macro and micro-diamonds in similar proportions to those reported from the initial drilling at Point Lake.

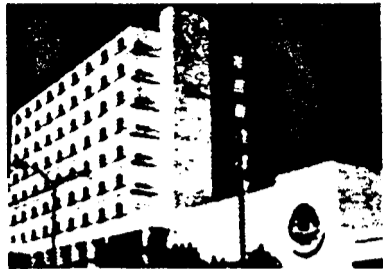
The DHK Croup (Detonia Resources Ltd., Horseshoe Gold Mining, and Kettle River Resources Ltd), announced in April, a discovery of a diamond-bearing kimberlite called Tli Kwe Cho, 35 km southeast of Point Lake containing 39 micro-diamonds and 15 macro-diamonds from 89.4 kilos of drill core.

Tanqueray Resources Ltd. significantly increased its land position at Lac de Gras during 1992 when they acquired 100 per cent interest in 81,711 acres adjacent to the Northwest quadrant of the Dia Met/BPH block. Tanqueray had an airborne survey carried on the claim block and 10 coincident resistivity-magnetic low anomalies typical of kimberlite pipes were found. A total of 14 samples were taken and indicator minerals were found in all. The 1993 exploration program will consist of an airborne survey of the northern portion of the block, detailed ground sampling of all anomalies followed by drilling of prioritized kimberlite targets.

Another player in the Lac de Gras area is Island-Arc Resources Corporation. They have just closed their latest acquisitions bringing their working interests in claim blocks there to 1,500,000 acres. Along with partners Pure Gold Resources Inc., Atria Resources Ltd, and Winslow Gold Corp., the group has received more detailed results from Ashton Mining Ltd. of Australia, regarding the Humpy Lake property located 145 km west of the Dia Met/BHP discovery. Studies have shown the garnets found in the area to be derived from diamondiferous bodies. An airborne geophysical survey is under way at Humpy Lake and a drilling program is planned to test high priority anomalies as soon as possible.



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## DIAMOND EXPLORATION INTERESTS

- ◆ Various working interests in 1,512,000 acres in the Lac de Gras area, Northwest Territories, including 124,000 acres at the Humpy Lake find. Drilling is expected to begin at about the time you receive this issue.
- ◆ 25% working interest in 4,120,000 acres in Alberta in 6 land parcels and interests in 13 claim blocks in Saskatchewan in the Fort alla Come, Sturgeon Lake and Carrot River areas.

## MASSIVE SULFIDES

An earn-in agreement with Rio Algom Exploration Inc. has just been signed on the Lockwood **volcanogenic** massive sulfide deposit near Everett, Washington. Drilling is expected by the beginning of August.

## GOLD IN MEXICO

Investigating a recently acquired gold property in Baja California, Mexico, which is currently in small scale production with a view to upgrading the facilities and increasing production.

SHARES OUTSTANDING (July 15, 1993): 3,805,201

Island-Arc has fewer shares outstanding than almost every company with a serious land position in the N.W.T. diamond exploration play. Its market capitalization is only \$4.5 million at current prices (\$1.15).

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**Consolidated Samarkand**, has completed staking 100,000 acres of diamond exploration property centred on Origin Lake, about 70 km west of Humpy Lake.

Also in the Humpy Lake area is **Atna Resources Ltd.**, who recently announced the acquisition of two new properties (North Snare and South Snare Lake) which are bounded by DeBeers (Monopros) property. Atria now has five properties totalling 475,000 acres. Results from nickel thermometry on 20 samples containing purple pyrope indicator minerals suggested the presence of economic diamond kimberlites on the property. Exploration crews are now evaluating and prioritizing geophysical targets outlined earlier this year. A drilling program is expected to commence the last two weeks of July.

**Mill City Gold Mining Corp.** recently announced that it has acquired a 25 per cent interest in a total of 300,000 acres in the Humpy Lake area from Major General Resources Ltd., Wins-

about 50 km southwest of Humpy Lake and anticipates the region will be the focus of at least four drilling programs this year. Airborne geophysical surveys have been completed on the northern part of Mill City's optioned claim block near Lac de Gras and preliminary results are expected shortly.

At Courageous Lake, 65 km southwest of Point Lake, Anvil Resources have claimed two new blocks totalling 25,825 acres. Dr. **E.A. Schiller**, Anvil's mining consultant reports that two separate circular medium to low resistivity anomalies occur on the west side of the East Claim Block over a lake similar to kimberlite targets found in the Lac de Gras area. One anomaly has a coincident magnetic low whereas the second anomaly has an offsetting magnetic low. Anvil intends to implement a stream sediment and till sampling geochemical program down-ice from the two anomalies and other suspected geophysical targets by July 1993.

Preliminary analyses of Lytton Minerals' drill core samples from its Ranch

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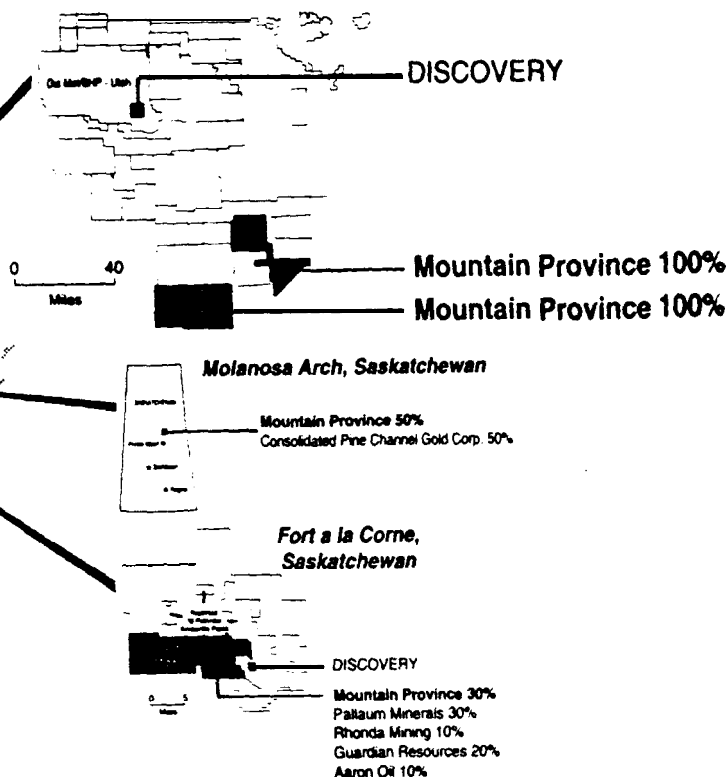
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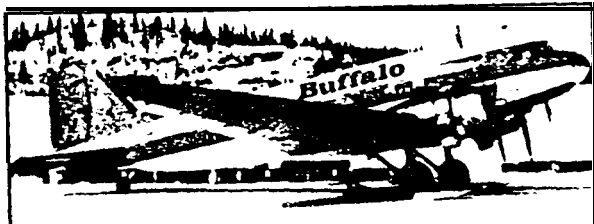
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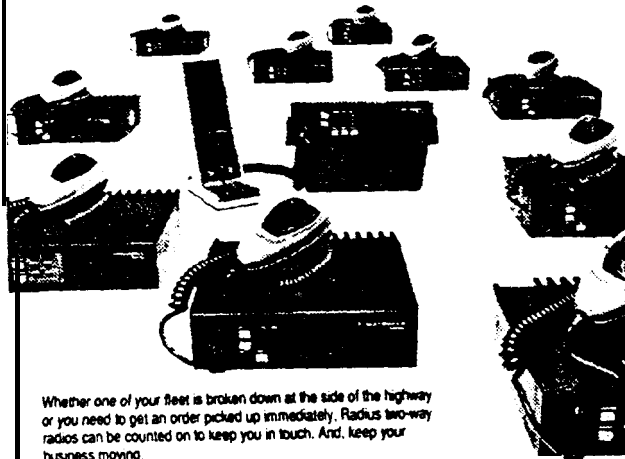
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Lake kimberlite pipe have returned a total of six macro-diamonds and 38 micro-diamonds. A limited number of these have been examined by an expert and a sufficient proportion is of gem quality to justify an extensive evaluation of the pipe. Two drills are currently working on the property to produce a 60-ton bulk sample. The pipe is steep-walled and its projected capacity of kimberlite should exceed 100 million tonnes to a depth of 300 metres. A major exploration program is now being formulated.

As was expected, exploration expenditures in the Territorial increased con-

siderably in 1992 and are predicted to continue this trend into 1993. Total exploration expenditures increased to \$38.1 million in 1992 from \$29.6 million in 1991. This year, they are projected to surpass \$60 million. While this large increase is mainly due to the diamond frenzy, both gold and base metal exploration continue to contribute to the totals.

As the lure of diamonds draws business and industry to Canada's north, a path to possible self-reliance for the area is being forged. While there are other industries in the Territories that contribute to this plight, few pack the

economic punch of mining.

While the Slave Province of the N.W.T. is especially remote, proposed long-term infrastructure development will provide direct benefits to the area with job creation in construction, transportation and service industries; and eventually, tourism.

With transportation and power in place, the Slave Province could easily become Canada's newest mining province. The economic benefits of diamond and mineral mining will reduce the north's financial dependency on the south, and ultimately grant the area its autonomy. •1

## SASKATCHEWAN SPARKLES

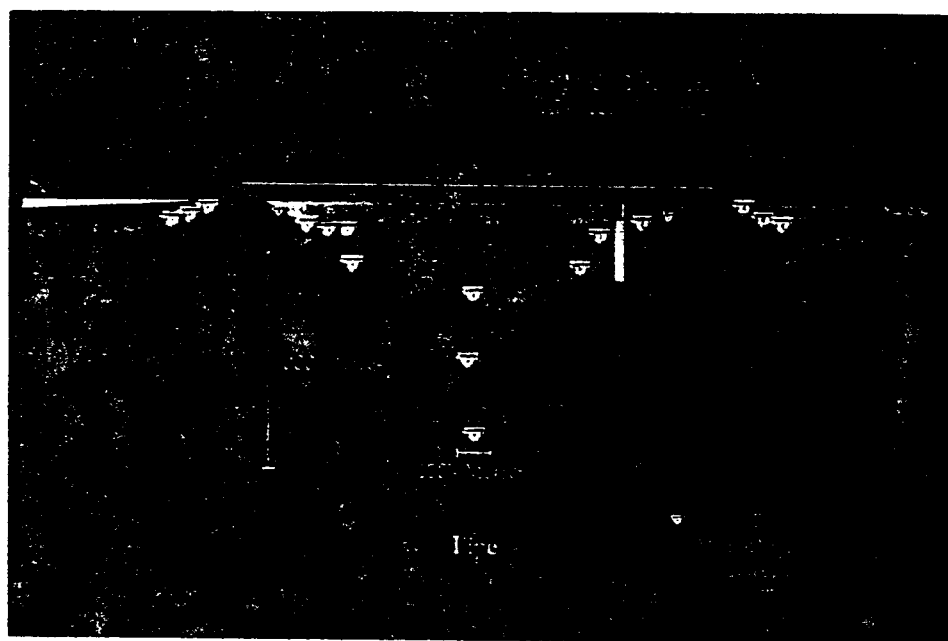
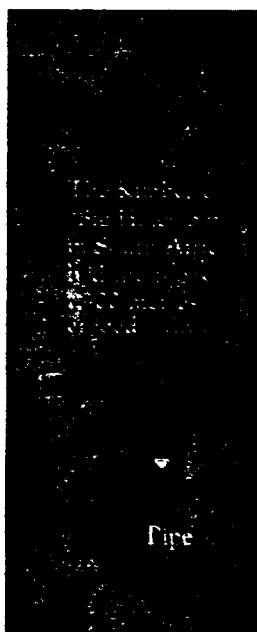
The diamond frenzy is not isolated to Canada's Northwest Territories. The Fort la Combe area in central Saskatchewan has also produced all the positive indicators for diamond deposits. Based on the African and Siberian diamond deposits, cratonic rocks of the Archean age which have the thickest cover of flat lying, relatively underformed sedimentary rocks contain the

world's largest and most prolific diamond deposits. The geology of the Saskatchewan discoveries matches these ideal conditions exactly.

In 1988 Uranerz Exploration and Mining Ltd., a multi-national West German Corporation joint-ventured with Cameco (a Saskatchewan Crown Corporation) in a multi-million dollar exploration program within the Prince

Albert area of Saskatchewan, Canada. In 1993, Monopros (a subsidiary of DeBeers) joined the consortium.

The initial results of their discovery yielded 160 macro diamonds, all of which were analyzed as gem quality. As of April 1993, 25 kimberlite bodies have been identified in the Prince Albert area. Drilling results released in April 1993 produced an additional 138



*It is estimated that for every diamond recovered at the Kimberley mine, 34 diamonds have been carried away towards the ocean during erosion of the upper crater.*

*The above comparison shows an important Saskatchewan advantage: more tonnage in*

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