NORTHEAST– CENTRAL REGION

By Robert A. Lane, P. Geo.
Regional Geologist, Prince George

SUMMARY

In 2000, exploration activity in the Northeast-Central region rebounded sharply from the record lows of 1999. Exploration expenditures were up more than 80% and the amount of diamond drilling more than doubled. Discovery of the Bonanza Ledge high grade gold zone by International Wayside Gold Mines Ltd. was the region's most significant exploration highlight. It led to the largest staking rush the province has witnessed since the discovery of Eskay Creek in 1989. Successful infill drilling at the Sustut copper deposit by Doublestar Resources Ltd. led to a revised "drill-indicated" resource for a proposed starter pit, and plans for further detailed exploration in 2001. A major exploration drilling program at the Lustdust polymetallic prospect by Alpha Gold Corp. produced very encouraging results. Hudson Bay Exploration and Development Company Limited completed phase one of a broad, multidisciplinary program on its Lottie Lake volcanogenic massive sulphide property. Several grassroots programs resulted in discoveries of vein, porphyry and volcanogenic massive sulphide showings that continue to demonstrate the unrealized mineral potential of the region.

Mining companies endured another year of subdued commodity prices and the Northeast Coal Block suffered a major setback with permanent closure of the Quintette mine in August. The shut down resulted in the loss of some 500 direct jobs. The Bullmoose operation benefited in the short term with a modest increase in production. On a more positive note, Pine Valley Coal Ltd. initiated a bulk sampling program at its Willow Creek deposit. Coal exploration in the northeast was relatively quiet with Western Canadian Coal Corp. the only company evaluating ground; however, the potential of the area for coalbed methane is being examined.

At the Kemess gold-copper mine, owner/operator Northgate Exploration Ltd. realized significantly higher throughput, markedly improved metal recoveries and lower average cash costs. Imperial Metals Corporation managed to keep its Mount Polley copper-gold mine operating despite expiration of a Job Protection Commission agreement in the middle of the year. Significant drilling programs took place at Kemess and Mount Polley, the two major operating metal mines in the region. Mine site exploration, including important programs at the idle Gibraltar and Baker mine sites, also was up markedly compared to 1999 levels.

The year 2000 was, for the most part, a year of recovery. Many indicators suggest that the rebound will continue during 2001.

METAL MINES

The **Kemess** open-pit gold-copper mine (Photo 1), located 300 kilometres northwest of Mackenzie (Figure 1), is owned and operated by Northgate Exploration Ltd. The mine employs approximately 445 people. In 2000, the company invested about $37 million to upgrade its operation. Installation of a new conventional thickener, rebuilds of both concentrate filter presses, modifications to flotation cells and full-time use of the regrind circuit has led to significant increases in metal recoveries in the mill. Also, addition of four new haul trucks, which brings the fleet of 240-tonne trucks to eleven, enabled the operation to reach or exceed its designed mill throughput of 48 000 tonnes per day. Metal recoveries for the fourth quarter increased dramatically over the first and second quarters to about 68% for gold and 75% for copper. Data for October showed that the cost of producing an ounce of gold had dropped to US$170, down from the third-quarter average of US$231. All the changes mentioned were in place by September and further improvements in productivity are expected in 2001. Production for the year and mineable reserves for the Kemess South orebody are listed in Table 1. The porphyry deposit is hosted by the Maple Leaf stock, a body of Early Jurassic quartz monzonite that intrudes intermediate volcanic rocks of the Jurassic Toodoggone formation. Hypogene, supergene, transitional and leach cap ore types are mined and milled separately because of their distinctive milling characteristics.

In 2000, Northgate began to explore the large tenure block that encloses its Kemess South deposit.

Photo 1. Looking westerly over the Kemess South orebody with waste rock dump in background. Two 240-tonne haul trucks in foreground provide scale (photograph taken by Ed Pittman, Inspector of Mines, Prince George).

Two priority porphyry gold-copper targets, Kemess North and Kemess Centre, were evaluated. A 12-hole, 4104-metre program of diamond drilling tested the Kemess North deposit, 5.5 kilometres north of the Kemess south pit. The new holes were drilled to confirm grade continuity between existing holes and to test new targets on the margin of the deposit. The most encouraging mineralization was intersected by holes drilled on the eastern side of Kemess North, where disseminations and stockworks of pyrite-chalcopyrite, locally associated with veins of quartz-anhydrite-magnetite, occur in propylitically-altered bladed feldspar porphyry and porphyritic monzodiorite. In January 2001, Northgate announced that the program had expanded the mineral inventory for the Kemess North zone to approximately 360 million tonnes grading 0.299 g/t Au and 0.154% Cu, up from the previous estimate of 74 million tonnes grading 0.343 g/t Au and 0.188% Cu. The company also drilled four holes, totalling 1015 meters, on its Kemess Centre prospect, a target located less than two kilometres north-northwest of the Kemess South pit. The first three holes tested an east-trending coincident radiometric - IP chargeability anomaly and intersected locally hornfelsed mafic flows and tuffaceous siltstones that are cut by a number of pale grey to pink quartz monzonite to diorite dykes. Mineralization encountered consists of disseminated and fracture-controlled pyrite, chalcopyrite and rare fracture-controlled molybdenum. The fourth hole is approximately 500 metres to the north and tested the eastern flank of a "bulls-eye" radiometric anomaly. It intersected mineralized and altered quartz monzonite to monzodiorite over its entire 319 metre length. The company intends to continue exploring both targets in 2001.

The **Mount Polley** porphyry copper-gold mine, located eight kilometres southwest of Likely, has a workforce of approximately 240. The mine is operated and 52.5%-owned by Imperial Metals Corporation. SC Minerals Canada Ltd., a wholly-owned subsidiary of Sumitomo Corporation of Japan, owns the remaining 47.5%. Mining took place mainly in the Cariboo pit, but approximately 10% of the mill feed came from the first two benches of the Bell pit. The

Springer zone has not yet been developed, but did receive a limited amount of percussion drilling (1670 metres in 39 holes). Extensive percussion and diamond drilling is planned for the Springer pit in 2001. Production for year 2000 (Table 1) totalled approximately 2.6 million grams (84 000 ounces) gold and 15 600 tonnes (34.4 million pounds) copper from 6 949 600 tonnes of ore processed at an average rate of 19 000 tonnes per calendar day. Metal recoveries for the same period were 69.75% for copper and 75.44% for gold. These rates have steadily increased since Mount Polley was commissioned in 1997. Mine staff have minimized the amount of oxide copper in the heads and mill-metallurgy staff have modified components in the concentrator. In June, the two-year economic plan arranged in co-operation with the province's Job Protection Commission expired and no extension was granted. Low metal prices continued to hamper the mine's profitability as it struggled to meet its scheduled loan repayments to Sumitomo Corporation. In January 2001, Imperial Metals signed an agreement with Sumitomo to purchase the minority interest in Mount Polley from SC Minerals Canada.

Mineralization at Mount Polley occurs in a northerly trending belt of hydrothermally altered intrusion breccia that is part of the Early Jurassic Polley stock. Exploration drilling programs this year targeted the C2 and 207 zones, which are immediately south of the Cariboo pit, the Road (or Rad) zone north of the Cariboo pit, and the new Southeast zone. The C-2 zone, and parallel 207 zone, have implications for future expansion of the southern limit of the Cariboo pit. Taken together, the zones have a strike length of at least 200 metres and are up to 70 metres across. Mineralization consists of disseminated and fracture-controlled chalcopyrite and trace bornite in hydrothermally altered intrusion breccia. Secondary K-feldspar, actinolite and magnetite are abundant. There are high copper oxide to sulphide ratios in the top 40 metres of the C2 and 207 zones which, at present, render the two zones subeconomic.

The Southeast zone, which measures 200 metres long by 150 metres wide, is a new exploration target located immediately southeast of the mine's major waste rock dump. Percussion drilling (4117 metres in 99 holes) and limited diamond drilling (411 metres in 3 holes) outlined approximately one million tonnes with an average grade of 0.65 g/t Au and 0.43% Cu. Mineralization occurs within a structurally controlled block of brecciated and intensely silicified monzonite. The zone is open to the south and east and will continue to be a priority target in 2001.

Taseko Mines Limited signed a memorandum of understanding with Cominco Engineering Services Ltd. (CESL) to investigate the feasibility of constructing a 35,000 tonne per year copper refinery at the presently idle **Gibraltar** mine. The refinery would utilize CESL's proprietary hydrometallurgical technology, an environmentally friendly process that is projected to lower the operating cost at Gibraltar by US$0.20 per pound of copper produced. A full feasibility study is expected to be completed by early 2001. In 2000, Taseko completed more than 200 line-kilometres of IP over areas north, south and east of existing pits and rock dumps. The survey generated a number of anomalies that the company will further evaluate in 2001.

Big Valley Resources (partnered with Dean Mason (CA), 568674 British Columbia Ltd. and several related companies from Prince George) has reached an agreement with Kinross Gold Corporation to purchase the former **QR** gold mine and property. The purchase price of $4.5 million is payable over 3 years commencing January 1, 2001. The new owners plan to process existing low grade ore stockpiles (approximately 220 000 tonnes grading 1.5 g/t Au) and to re-evaluate the underground Midwest zone for additional gold-bearing skarn mineralization. Big Valley also plans to explore the property aggressively for new open pitable resources. The most recent exploration drilling carried out by Kinross focused mainly on areas west of the developed zones and outlined limited resources in two areas. However, the best potential may exist east of the Main zone pit, where the permissive gold-bearing horizon thickens and comes close to surface. This area will likely be a priority for renewed exploration in 2001.

The **Shasta** epithermal vein deposit, located in the Toodoggone region of northern British Columbia, has been mined intermittently since 1989. In 2000, Sable Resources Ltd. mined and processed 8581 tonnes of gold-silver ore with an average head grade of approximately 10 grams/tonne gold equivalent. Blasted muck was retrieved from underground using a single scoop tram, then loaded onto a truck for the 10 km haul to the company's Baker mill. At the **Baker** mine itself, five closely spaced lines of Induced Polarization survey, completed on each of the past-producing A and B veins, identified possible extensions of the two mineralized structures. The survey also identified two new structures, northwest of and parallel to the B vein. Sable intends to drill these targets in 2001 and also expects to resume production at the Baker mine. This year, an eight-hole, 360-metre diamond drilling program on the Ridge

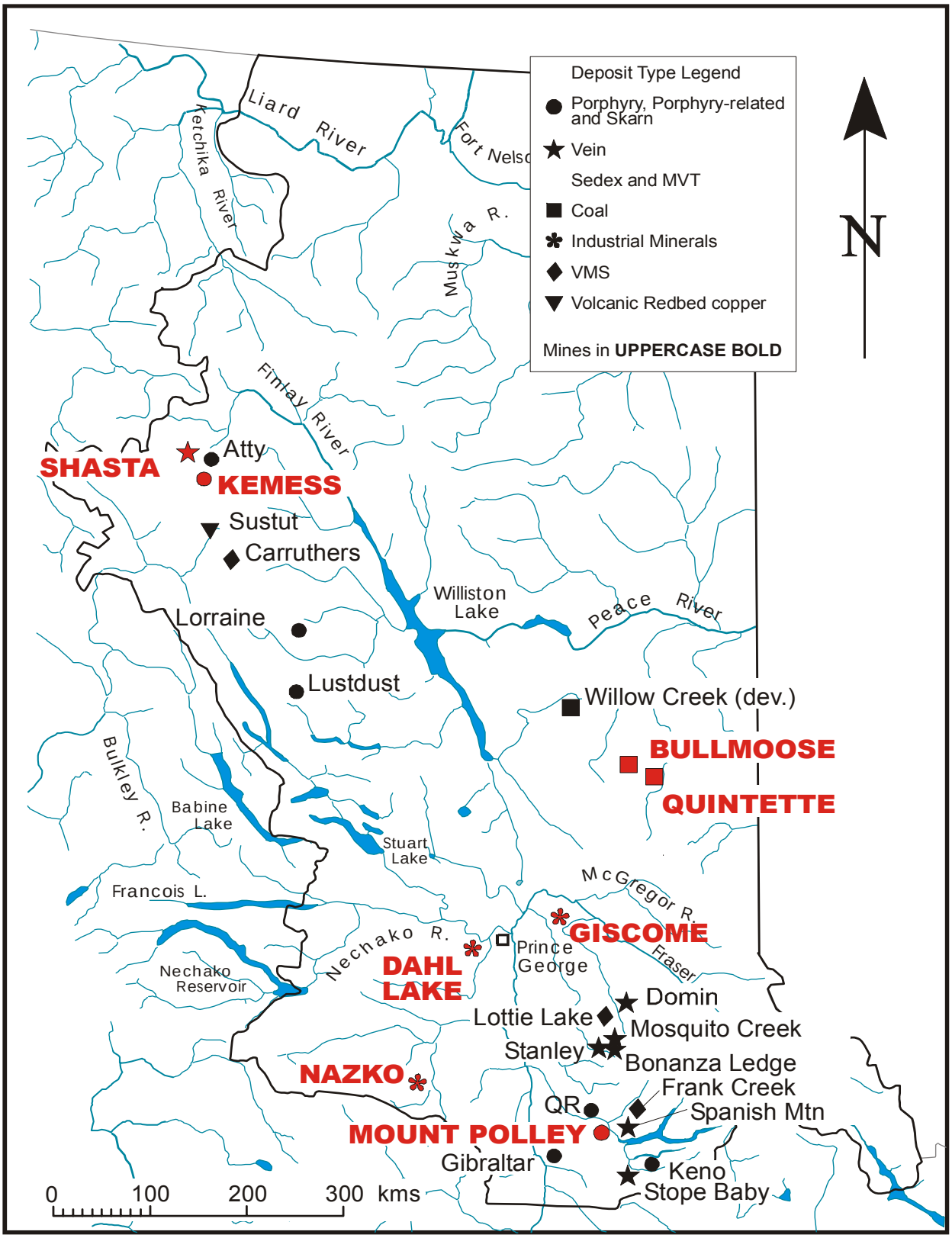

Figure 1. Operating Mines and Selected Exploration Projects, 2000.

zone targeted the Beck vein. However, there were no high grade intersections.

INDUSTRIAL MINERALS OPERATIONS

Canada Pumice Corporation produces red and black tephra from its **Nazko** quarry west of Quesnel. Current production is approximately 15 000 cubic metres annually. The deposit has a resource in excess of 44 million tonnes. The material from Nazko is used for landscaping, sporting facilities, growing and filtration media and lightweight aggregate (structural) applications. In 1999, the company bought the former Crownite plant site in Quesnel with the intention of developing a processing and bulk handling facility for its products. Canada Pumice is also evaluating the potential of its Burnt Shale pozzolan deposit, which is adjacent to the former plant site.

In the Prince George area, small quantities of crushed limestone were shipped from the Pacific Lime Products Ltd. **Giscome** quarry to supply local area pulp mills. Northrock Industries Ltd. provided a limited amount of limestone from its **Dahl Lake** quarry for local rip-rap and landscape uses. Dome Creek Structural Slate Company quarried a limited tonnage of attractive green slate from its Dome Creek deposit on Highway 16 east of Prince George.

COAL MINES

The year began with two operating metallurgical coal mines, both located near Tumbler Ridge in the northeast coal block. However, in March, Teck Corporation announced plans to permanently close its high-cost **Quintette** mine, resulting in the layoff of more than 500 workers. The mine ceased operations on August 17, 2000, after producing an estimated 1.3 million tonnes of clean metallurgical coal during the year. Coal prices, which have shrunk 28% over the last two years to about US$40/tonne, were cited as the primary reason for the closure. From its opening in 1984, Quintette produced approximately 68 million tonnes of metallurgical coal. There are currently about 50 staff on site de-commissioning the wash plant and conducting reclamation.

The **Bullmoose** mine, 61% owned by Teck Corporation, produced an estimated 1.7 million tonnes of clean metallurgical coal in year 2000. Production increased marginally from 1999 levels, in part, to maintain the company's coal supply obligations to its Japanese clients. The mine is expected to continue operating until June 2003, when reserves at the South Fork pit will be exhausted. The current workforce of approximately 250 is expected to be gradually reduced as the operation nears its closure date.

DEVELOPMENT PROJECTS

Pine Valley Coal Ltd. started to develop the low-volatile coal measures at its **Willow Creek** property, 45 kilometres west of Chetwynd. The deposit occurs

Table 1. 2000 Mine Production and Reserves

Mine (Operator)	Employment	Production	Reserves (as of Jan. 1, 2001)
Kemess (Northgate Exploration Ltd.)	445	7029 kg (225 994 oz) Au 7085 kg (227 812 oz) Ag 22 850 tonnes Cu	146 million tonnes grading 0.653 g/t Au and 0.235% Cu
Mount Polley (Imperial Metals Corp.)	243	2612 kg (83 998 oz) Au, 81.9 kg (2632 oz) Ag 15 627 tonnes Cu	23.0 million tonnes grading 0.443 g/t Au and 0.381% Cu
Shasta (Sable Resources Ltd.)	10	62 kg (2000 oz) Au-equiv (est)	-
Quintette (Teck Corp.)	500/50	1.3 million tonnes metallurgical coal (est)	Closed August, 2000
Bullmoose (Teck Corp.)	240	1.7 million tonnes metallurgical coal (est)	Production to continue at 1.7 million tonnes/year until mid-2003
Nazko (Canada Pumice Corp.)	4	15 000 m3 tephra (approx)	44 million tonnes

on the north limb of the Peace River anticline within the Cretaceous Gething Formation. The company, owned one-third by Mitsui Matsushima of Japan and two-thirds by Globaltex Industries Inc., plans to mine up to 100 000 tonnes of coal during the winter of 2000-2001 from the #7 seam in the Peninsula Pit. A simple 'crush-and-screen' process will be used to produce a 'raw' (i.e. unwashed) coal product for direct shipping. A rail siding has been constructed, a loadout facility was nearing completion at years end, and access/haul roads have been upgraded. If markets prove favourable for this coal product, which is used for pulverized coal injection (PCI) in blast furnaces, production is expected to increase over the next few years.

EXPLORATION TRENDS

Year 2000 exploration expenditures for the region were about $6.2 million (Figure 2), up more than 80% from last year. The amount of exploration drilling also increased sharply to 36 600 metres (Figure 3), in part reflecting renewed activity at the region's two major metal mines. Claim staking in the region increased dramatically, mainly because of activity in the Cariboo region. The number of Mineral Notices of Work (NoW) applications increased to 112 from only 86 in 1999, and the total number of NoW applications for all projects in the region rose by 45 to 568 (Table 2). There were twelve major projects (those that involved mechanical disturbance and expenditures in excess of $100,000; Table 3), two more than in 1999. The major projects were at Kemess, Mount Polley, Gibraltar, Mosquito Creek Gold, Spanish Mountain, Sustut, Bonanza Ledge, Carruthers, Domin, Lottie Lake, Lustdust and Stanley.

Gold-enriched porphyry systems, gold-bearing veins (including 'pyrite replacement' mineralization)

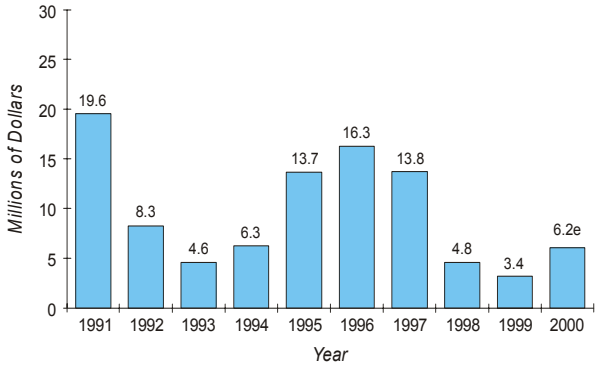

Figure 2. Annual Exploration Expenditures, Northeast-Central Region.

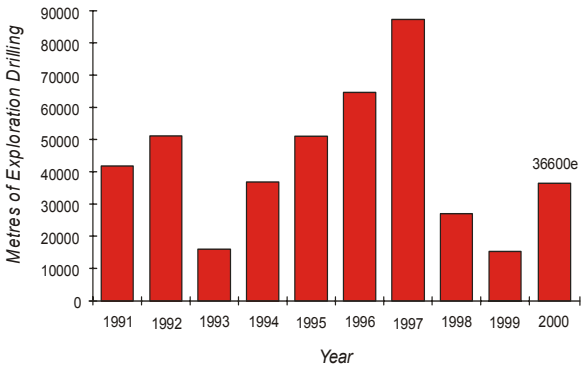

Figure 3. Annual Exploration Drilling, Northeast-Central Region.

Table 2. Notice of Work (NoW) Submittals for Projects in the Northeast-Central Region

Type of NoW	Year 1995	1996	1997	1998	1999	200(
Mineral	221	184	164	115	86	112
Placer	498	440	415	403	393	422
Coal	3	4	5	5	2	1
Other	67	58	57	56	42	33
Total	**789**	**686**	**641**	**579**	**523**	**568**

and volcanogenic massive sulphide deposits were the most sought after targets in 2000; together they accounted for more than 80% of exploration spending in the region (Figure 4). Several senior and junior companies are following up their research with 'old fashioned', grassroots reconnaissance programs. Primary targets are porphyry, vein and volcanogenic massive sulphide systems. Some of this grassroots work will lead to more advanced stage exploration. The province's Prospectors Assistance Program provided grants for seven individuals to explore in the region. These grantees located a number of new showings that warrant additional work.

EXPLORATION SUMMARY

GATAGA/KECHIKA TROUGH

For the third consecutive year there were no exploration projects conducted in the Gataga sedex-lead-zinc-silver belt north of Williston Lake. The recently completed Mackenzie Land and Resource

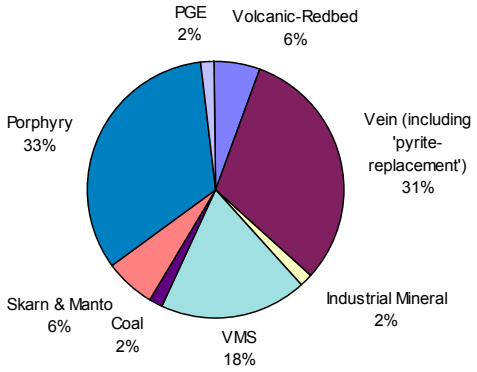

Figure 4. Exploration targets expressed as a percentage of total 2000 expenditures (estimated $6.2 million) in Northeast-Central British Columbia.

Management Plan (LRMP) may provide more certainty for the region in the future.

TOODOGGONE CAMP

Exploration activity in the Toodoggone region, east of Spatzizi Plateau was, for the most part, relatively low. Gold-bearing veins and gold-copper porphyry systems were the primary targets. A number of limited-budget projects focused on the porphyry potential between the Baker and Kemess mine sites.

Stealth Mining Corporation completed limited prospecting on the Goat and Wrich epithermal vein prospects, parts of its large **Pine** porphyry gold-copper property centered south of the Finlay River. Finlay Minerals Ltd. conducted seven line-kilometres of IP and magnetometer survey, as well as mapping and geochemical sampling, over its **Atty** porphyry copper-gold prospect. The Pine and Atty properties have a similar setting to that of the nearby Kemess South deposit.

OMINECA MOUNTAINS

A small number of exploration programs were conducted in the Omineca Mountains region, a broad area centered roughly between Takla and Williston lakes. Several diamond drilling programs were completed, including those at the Sustut, Carruthers, Lorraine-Jajay and Lustdust prospects. Investigative reconnaissance work by several companies in and around the Hogem batholith may lead to more advanced exploration in 2001.

The Southeast zone of the **Sustut** volcanic redbed copper deposit, located about 45 kilometres south of the Kemess mine, was the target of an infill diamond drilling program by owner/operator Doublestar Resources Ltd. The Southeast, Southwest and North zones, drilled by previous owner Falconbridge Ltd. in the early 1970s, comprise the property's indicated mineral resource of 21 million tonnes grading 1.11% Cu. Doublestar's 'upgraded' cumulative resource estimate for the Southeast zone, a potential starter pit, is 5.414 million tonnes grading 2.10% Cu and 6.8 g/t Ag at a cutoff grade of 0.90% Cu. Host rocks are dominantly green volcanic conglomerates, grits and sandstones of the Upper Triassic Moosevale Formation of the Takla Group. Permeability of these rocks played a significant role in formation of the stratabound zones. Mineralization consists mainly of disseminated chalcocite, bornite, chalcopyrite and native copper within tabular zones that are parallel to bedding.

Doublestar is moving ahead with a pre-feasibility study that is expected to be completed in the spring of 2001. The company is also investigating the merits of shipping ore directly to the Kemess mine for blending and processing. Exploration in 2001 is expected to focus on the North zone, where in-fill diamond drilling will take place to provide data for a new resource estimate. Although at an early stage, Doublestar is reviewing development options.

Phelps Dodge completed a 7-hole, 1000-metre diamond drill program on its **Carruthers** volcanogenic massive sulphide property near Johanson Lake in north-central British Columbia. The property is underlain by graphitic mudstones, siltstones and fine-grained sandstones of the Triassic Dewar Formation (Takla Group). Drilling intersected the projection of a narrow polymetallic horizon that is exposed in cliffs near the ridge crest. The mineralized horizon contains thin layers of pyrite and chalcopyrite up to 2 centimetres thick and millimetre-scale chalcopyrite veinlets.

Late in the year, after negotiating an option agreement for the **Lorraine-Jajay** property with Lysander Minerals Corp., Eastfield Resources Ltd. completed a brief exploration program focusing on two zones, the MacKenzie porphyry copper-gold zone discovered in 1999, and the BM Breccia copper-gold-platinum-palladium occurrence. The Lorraine-Jajay property is located approximately 190 kilometres northwest of Fort St. James and covers

Table 3. Major Exploration Projects, Northeast-Central Region, British Columbia - 2000.

Property (Owner)	MINFILE	NTS	Commodity	Deposit Type	Work Done
MINE SITES					
Gibraltar (Taseko Mines)	093B 012	93B/9W	Cu, Mo	porphyry	237 line-km grid; IP
Kemess (Northgate Exploration)	094E 021	94E/2	Au, Cu	porphyry	16 ddh, 5119 m; geophy prospect; geochem
Mount Polley (Imperial Metals)	093A 008	93A/12E	Au, Cu	porphyry	26 ddh, 4275 m; 156 pdh, 6404 m; geol
ADVANCED and EARLY STAGE PROJECTS					
Bonanza Ledge (International Wayside Gold Mines)	093H 019	93H/4E	Au	replacement(?), mesothermal vein	48 ddh, 6230 m; trench; 43 line-km grid; geochei geol; 18.5 line-km IP
Carruthers (Phelps Dodge)	094D 172	94D/8E	Cu, Zn, Au	VMS	7 ddh, 1000 m; geophys
Domin (Gold City Industries)	093H 133	93H/6	Au, Ag	mesothermal vein	17 ddh, 1000 m
Mosquito Creek Gold (Island Mountain Gold Mines)	093H 010	93H/4E	Au	pyrite replacement	10 ddh, 1754 m; re-establish grid, 25 line
Lottie Lake (Hudson Bay Exploration and Development)	-	93H/4, 5	Cu, Au	VMS	6 ddh, 709 m; prosp; gec 81 line-km grid; geophy geochem; trench
Lustdust (Alpha Gold)	093N 009	93N/11W	Au, Ag, Zn, Cu, Pb	skarn, manto	29 ddh, 4680 m
Spanish Mountain (Imperial Metals)	093A 043	93A/11W	Au	vein	1,908 tonne bulk sample
Stanley (Castle Metals)	093H 001-003, 082-083, 099-100	93H/4W	Au	mesothermal vein	geol; geochem; geophys trenching
Sustut (Doublestar Exploration)	094D 063	94D/10E	Cu, Ag	volcanic redbed	22 ddh, 2105 metres; geochem; geol

about 240 square kilometres, mostly underlain by alkalic intrusive rocks of the Hogem Batholith.

Five reconnaissance drill holes tested the MacKenzie porphyry copper-gold zone and intersected intrusive rocks that are intensely potassium-altered and host narrow zones of copper mineralization. Sampling across two nearby massive sulphide zones produced very encouraging results, including a 1.1 metre sample grading 19.27% Cu and 6.76 g/t Au. Selected grab samples of bornite-rich, clast-supported syenite breccia from the BM Breccia zone grade up to 38% Cu, 18.9 g/t Au, 3.4 g/t Pd and 0.66 g/t Pt.

Lustdust is an exciting carbonate-replacement (skarn and manto) prospect located 210 kilometres north-northwest of Prince George. Owner/operator Alpha Gold Corp. completed more than 4500 metres of diamond drilling in 29 holes in 2000. Most of the drill holes targeted prospective skarn zones, although the company did test areas further west for potential porphyry mineralization. The property lies west of the Pinchi fault and is underlain by folded, steeply west-dipping and northwest trending limestone, argillite and lesser mafic tuff of the Permian Cache Creek Group.

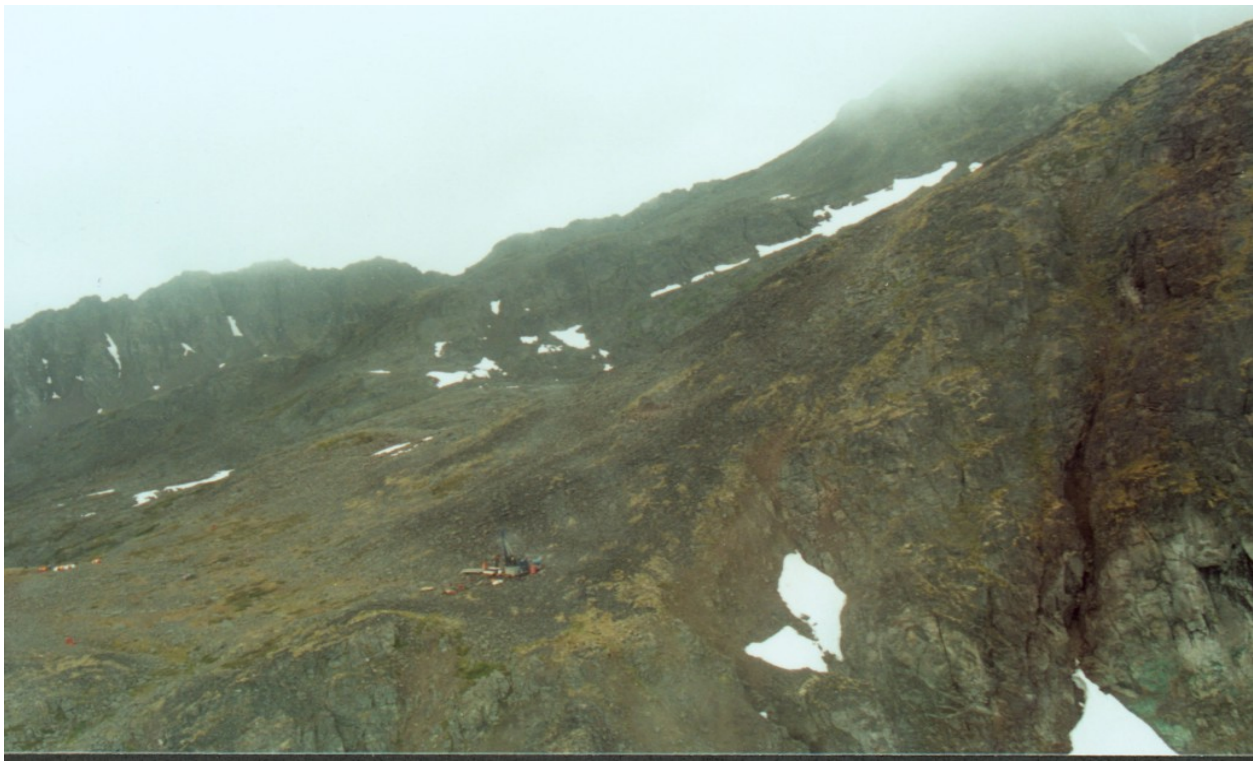

Photo 2. Diamond drill (foreground) testing the Southeast zone on the Sustut copper deposit.

The stratified rocks are intruded by a monzonite stock that is exposed on the western margins of the property and cut by a swarm of related(?) feldspar megacrystic dykes and/or sills. Mineralization is spatially and almost certainly genetically related to the intrusions. It strengthens at depth and toward the west, where several holes confirmed the presence of porphyry-style mineralization. Recognition of porphyry mineralization adds significantly to the potential of the property. Encouraging assays, mainly from skarn mineralization, include:

7.1 metres averaging 8.7 g/t Au in hole LD-20-09;

14.33 metres averaging 2.8 g/t Au, 34.3 g/t Ag, 0.7% Zn and 2.2% Cu in hole LD-20-13;

7.7 metres grading 4.4 g/t Au, 41.5 g/t Ag, 1.2% Zn and 2.5% Cu in hole LD-20-17, and;

4.12 metres averaging 1.8 g/t Au, 354 g/t Ag, 17% Zn and 0.9% Cu in hole LD-20-20.

North of Canyon Creek in a relatively little-explored area, a road side trench, TR-05, exposes a 2-metre wide zone of garnet-rich skarn alongside a QFP dyke that is mineralized with coarse-grained chalcopyrite and bornite. Disseminated and fracture-controlled chalcopyrite and pyrite extend laterally well into the dyke and hornfelsed argillite host. Sampling by the company across the 2-metre zone averaged 5.7 g/t Au, 351 g/t Ag, 12% Cu and 0.3% Zn within a 7-metre interval that averaged 5.1% Cu. This area is prospective for larger, more proximal skarns as well as gold-enriched porphyry copper mineralization. The company expects to build on these results and will likely proceed with an expanded exploration program in 2001.

ROCKY MOUNTAIN FOOTHILLS / NORTHEAST COAL BLOCK

There was little coal exploration in the northeast coal block in 2000. On the **West Brazion** coal property located 35 kilometres south of Hasler, Western Canadian Coal Corp. (WCC) completed limited field examinations and drilled one small-diameter, 90-metre core hole. Previous work had identified the Gething Formation coal measures in a flat-lying structure, and the hole intersected four seams totaling 8 metres in thickness over a 48-metre interval. WCC also investigated coal measures in the Gates Formation in the **Wolverine North** area (includes three of the Mount Spieker deposits). This property is 23 kilometres west of Tumbler Ridge. From compilation of earlier work and field studies the com-

pany identified two main targets, the underground Perry Creek deposit and the surface EB Pit deposit. The company also conducted limited surveying and trenching on its **Burnt River** property.

Interest in the coal bed methane potential of the province continues to grow and eyes are turning to the northeast coal block. This interest is expected to lead to a more robust level of activity in the near future.

NECHAKO PLATEAU

The Nechako Plateau area was quiet.

CARIBOO

Exploration activity in the Cariboo was energized early in 2000 with the discovery of the **Bonanza Ledge** high-grade gold zone near Wells, by International Wayside Gold Mines Ltd.. During the ensuing staking rush approximately 7900 new mineral claim units were recorded. Numerous option agreements were signed as many junior mining companies hustled to acquire tenure on the most prospective ground.

Most of the new staking covered areas considered promising for gold mineralization along the historic Wells-Barkerville belt. The belt is a 30 kilometre long, northwest-trending zone of lode gold mineralization and placers that has produced 38 million grams of lode gold and approximately 75 million grams of placer gold. It is underlain by deformed metasedimentary rocks of the Paleozoic Snowshoe Group, part of the Barkerville subterrane. Two styles of gold-bearing pyrite mineralization are known in the camp: (1) pyrite associated with quartz veins, such as those mined at the former Cariboo Gold Quartz mine immediately south of Wells, and (2) massive pyrite 'replacement' lenses within carbonate rocks, material that typified ore mined at the former Mosquito Creek Gold mine north of Wells.

International Wayside made the Bonanza Ledge discovery while drilling the BC vein, - a significant northwest-trending, steeply northeast-dipping quartz-pyrite vein located approximately three kilometres southeast of Wells. The first hole to penetrate the new zone was BC-2K-8. It encountered 5.7 metres of semi-massive pyrite that averaged 14.36 g/t Au in the immediate footwall of the vein. Recognition of this high grade material resulted in deeper step-out holes that targeted this new footwall zone, later named Bonanza Ledge. Holes 10 through 13 intersected some tremendously impressive intervals of gold mineralization (i.e. 25.8 metres averaging 24.65 g/t Au in hole BC 2K-10; 17.6 metres grading 20.795 g/t Au in hole BC 2K-12; and 33.2 metres grading 10.60 g/t Au in hole BC 2K-13) that confirmed the high grade nature of the discovery.

Mineralization is hosted by an isoclinally folded and overturned package of phyllitic argillites, silty dolostones and metaturbidites of the Hardscrabble Mountain succession near its contact with the structurally overlying Downey succession (Rhys and Ross, 2000). The Bonanza Ledge auriferous pyrite mineralization occurs as stringers, concordant layers and massive bands (10 - 70% pyrite) within a 20 to 100 metre wide envelope of pronounced iron/magnesium carbonate-sericite-pyrite alteration that discolours the host rocks to shades of tan and yellow (Photo 3). The wider intersections of mineralization may be associated with thickening of the zone in, or near, fold hinges of the tightly folded host rocks. The zone has been traced northwesterly along strike for more than 130 metres. Mineralized zones may be elongate and plunge gently northwest, similar in geometry to the pyrite replacement lenses at the former Mosquito Creek Gold mine. The hangingwall rock package includes a distinctive, medium to pale green chloritic phyllite (metatuff?) that typically contains 2% to 5% disseminated magnetite porphyroblasts (Photo 4). This unit provides an excellent stratigraphic marker for the belt.

By the end of the year 2000 field program, International Wayside had drilled 48 holes in the Bonanza Ledge area. Geological mapping, soil geochemistry and an Induced Polarization survey were also completed in the area, as well as along the projected strike of the zone.

Several new targets were identified for further detailed examination during 2001, including a 1.2 kilometre long gold in soil anomaly located two to three kilometres northwest of Bonanza Ledge.

Golden Cariboo Resources Ltd. examined its **Grouse Creek** property, which lies southeast and along trend from the Bonanza Ledge zone. Prospecting identified locally altered (bleached) magnetite-bearing intermediate volcanic rocks and grey phyllitic argillites in a stratigraphic position consistent with the overturned Hardscrabble Mountain succession. A more advanced level of exploration, including diamond drilling, is planned for 2001.

Photo 3. Close-up of auriferous pyrite mineralization from hole BC 2K-19, Bonanza Ledge zone.

Photo 4. Close-up of hangingwall rocks with distinctive magnetite porphyroblasts (hole BC-2K-15), Bonanza Ledge zone.

At the former **Mosquito Creek Gold** mine, Island Mountain Gold Mines Ltd. conducted a 10-hole, 1754-metre diamond drilling program aimed at stratabound auriferous "pyrite-replacement" mineralization in the Main Band limestone unit of the Baker member (Downey succession). The drilling, centred just northwest of the mine's headframe, intersected several narrow mineralized zones, including a 0.6 metre interval in hole IMG-2K-03 that graded 15.07 g/t Au. The program also included line-cutting and soil sampling.

Gold City Industries Ltd. conducted grid-based mapping, sampling and SP and IP surveys over parts of its **Myrtle** property. The southwest edge of the Myrtle claim group shares a common boundary with International Wayside's claims near the Bonanza Ledge discovery. Two chargeability anomalies were outlined, one of which is coincident with a large multi-element soil geochemical anomaly, and both are high priority targets for a 2001 diamond drilling program. Gold City also conducted preliminary examinations on its nearby **Proserpine** and **Promise** properties.

Joint venture partners Castle Metals Corp. and Gold Giant Minerals Inc. completed prospecting, geochemical sampling, magnetometer-VLF surveys on 4 small grids, and trenching on their **Stanley** project (Grub claim group). The property is near Lightning Creek, south of the historic townsite of Stanley. It encompasses a number of former placer diggings, including several significant hydraulic pits, and several bedrock showings.

Nevsun Resources Ltd. made a brief visit to its **Warspite** property, five kilometres southeast of the former Cariboo Gold Quartz mine, and may explore this very prospective ground in earnest during 2001.

Tenure covering the former **Cariboo Hudson** gold mine, located toward the southeast end of the Wells-Barkerville belt, was allowed to lapse in the late winter, 2000. It was quickly restaked by the previous owner, Cathedral Gold Corporation, after news of the Bonanza Ledge gold discovery came to light. In the fall, the company relogged core from several mid-1980s drill holes to look for indicators of the camp's pyrite replacement-style of mineralization. The core consists of a series of pale green phyllitic layers with lesser black phyllite, quartzite and grey marble beds.

Hudson Bay Exploration and Development Company Limited completed a five-month multidisciplinary program on its **Lottie Lake** volcanogenic massive sulphide project located 20 kilometres north of Wells. The property incorporates the Lottie, Bow and Tow float anomalies and is underlain primarily by basic to intermediate volcanic rock, argillaceous sediment and chert of the Antler assemblage (Slide Mountain Terrane). Work in year 2000 consisted of prospecting, geological mapping, geochemical sampling, ground electromagnetics (EM), and Spectrum airborne EM surveys, trenching and diamond drilling. The program confirmed that high grade float occurs on the property and identified several EM conductors, one of which is close to the Lottie float anomaly. Diamond drilling and trenching did not locate the bedrock source of the float. Exploration is expected to continue in 2001.

Further north, Gold City undertook a prospecting, geochemical sampling and diamond drilling program on its **Domin** high-grade gold-silver vein prospect. The property, optioned from vendors Ron Mac-

Arthur and Al Raven, is located north of Bowron Lake Park, 43 kilometres northeast of Wells. The property is underlain mainly by complexly folded calcareous argillites and limestones of the Hadrynian Isaac Lake Formation. Mesothermal quartz±sulphide veins that comprise the South zone are exposed over a 50 by 150 metre area, immediately west of the Isaac Lake fault. Veins are up to 4.4 metres thick. The 'A' veins occur in structures parallel (~155°) to the Isaac Lake fault and 'B' veins are localized along planes parallel to bedding. A 17-hole diamond drilling program that tested a 200 metre strike length of the South zone, produced encouraging results. One 1.8 metre intersection in hole 00-GDD-05 graded 10.33 g/t Au, 66.9 g/t Ag, 2.6% Pb and 6.7% Zn. At the North zone two new high grade gold veins, one with 23.84 g/t Au over 0.6 metre and the other with 68.66 g/t Au over 0.2 metre, were discovered within a 400 by 500 metre multi-element soil geochemical anomaly. A more aggressive exploration program is expected in 2001.

LIKELY AND HORSEFLY AREAS

New mineral claims were also staked north and northwest of Likely to cover ground with platinum group element (PGE) potential. Barker Minerals Ltd. was one of the most aggressive companies, acquiring a large amount of mineral tenure mainly north and west of Likely. Big Valley Resources Ltd., Richfield Resources Ltd. and Noble Metal Group Incorporated are also major tenure holders in this prospective area. Most exploration efforts included compilation of all existing data, detailed prospecting and geochemical sampling, especially in areas that coincide with magnetic anomalies. Claims west of the Eureka fault are underlain by Middle to Late Triassic basin fill (the 'black clastic' unit) and the overlying Late Triassic to Early Jurassic volcanic arc assemblage of the Quesnel River Group. The occurrence of PGEs in this area may be associated with Early Jurassic copper and gold-bearing alkalic intrusions or perhaps with gabbroid intrusions. Claims east of the fault are underlain by metamorphosed volcanic and sedimentary rocks of the Paleozoic Snowshoe Group. These rocks are locally cut by ultramafic intrusions that are a possible source of the platinum that was recovered from a number of historic placer operations. East of Likely, Noble Metal Group drilled two deep core holes to evaluate an ultramafic body on its mineral claims that straddle Keithley and Snowshoe creeks. Results are not yet available.

Imperial Metals examined five zones on the **Spanish Mountain** gold property, located east of Likely, which it optioned from Wildrose Resources Ltd.. The Dodge Pit, 103, LE, M5 and Madre zones were stripped and percussion drilled on two to five metre centers. A 1908 tonne bulk sample was mined from the LE zone and trucked to the Mount Polley mill for processing. Gold-bearing mineralization consists mainly of variably oxidized pyrite and quartz-pyrite stringers in graphitic argillite and siltstone. The sediments are part of the Middle to Late Triassic succession that forms the base of the Quesnel Group. The average head grade of the material mined was 3.02 g/t Au. Results are reported to be encouraging and additional metallurgical work and exploration may proceed in 2001.

Immediately north of the Mount Polley mine Big Valley Resources Inc. diamond drilled the **Lloyd 2** porphyry copper-gold prospect late in the year. Three of the four holes drilled intersected pyrite and sericite-altered intrusive rocks of the Polley stock. Assays from the core have not yet been released.

At the **Ace** and **Frank Creek** volcanogenic massive sulphide projects east of Likely, Barker Minerals Ltd. continued to evaluate its vast tenure package. Further prospecting resulted in discovery of the **SCR** showing, approximately eight kilometres west of Frank Creek. The company interprets stringer-type mineralization hosted by felsic volcanic rocks of the Barkerville subterrane and semi-massive to massive sulphide mineralization in float to be from a previously unrecognized volcanogenic massive sulphide system. The company completed 140 line-kilometres of line cutting and HLEM and magnetic surveys over the Ace, Frank Creek and SCR target areas. The company intends to drill several of the targets early in the 2001 field season.

Erin Ventures Inc. optioned the **Stope Baby** property, which is located five kilometres southwest of Horsefly, from prospectors Jack Brown-John and Herb Wahl. A series of narrow, sub-vertical, north-trending quartz-carbonate-sulphide veins are exposed at low water over about a 70-metre width in Moffat Creek canyon. The veins occur in Jurassic (Pliensbachian?) maroon amygdaloidal and vesicular olivine pyroxene basalts. The veins contain comb quartz and coarse bladed sphalerite, classic epithermal vein textures that indicate open space filling. Segments of veins comprise 15 to 25% coarse-grained sphalerite and lesser chalcopyrite, galena and pyrite (Photo 5). The vein system was the target of prospecting, an IP survey, and a two-hole, 348-metre diamond drilling program. Core assays are not yet available, but a selected grab sample from 'Vein

Photo 5. Sphalerite and chalcopyrite-bearing (dark clusters) epithermal quartz-carbonate vein, Stope Baby property.

1' assayed 10.73% Zn, 0.88% Cu, 92.6 g/t Ag and 0.614 g/t Au. The veins could be related to an unrecognized porphyry system located further south.

The **Keno** (Bren 093A 079) porphyry molybdenum-copper prospect, located 32 kilometres east of Horsefly, was drilled by property co-owners Jack Brown-John and Herb Wahl. Previously the area was explored as a gold vein prospect. However, its potential as a porphyry system was realized in 2000 during the 4-hole, 603.5-metre drill program. Early Jurassic dykes and stocks of altered monzonite intruded and metamorphosed argillites of the late Triassic Quesnel Group. Fracture-controlled molybdenite occurs consistently throughout the full length of hole K00-03, but is most conspicuous in zones of moderate to intense argillic alteration. Ribboned quartz-molybdenum veins that are up to 10 cm across cut the altered intrusion. Traces of chalcopyrite are present, but uncommon. The most encouraging intersection was from hole K00-03 where an 87 metre interval averaged 324 ppm Mo.

PRELIMINARY REPORT ON PLACER ACTIVITY

By Ken MacDonald, P.Geo.
Mines Branch, Prince George

The placer sector in northeast-central British Columbia experienced a general decline from the already depressed levels of activity encountered over the past several years. Accurate estimates of expenditures on exploration and testing are unavailable but are expected to be down from 1999. There were fewer major projects this year as most operators were more inclined to conduct modest testing programs for assessment purposes. Overall, the amount of new ground explored and material (paydirt) processed decreased. High fuel costs and low commodity prices contributed significantly to the general decline.

The continued downward turn in placer mining activity is reflected in the relatively low number of Notices of Work (NoW) applications submitted to the Prince George office. A total of 422 placer NoWs were filed, compared to 393 in 1999 and 403 in 1998. Of the total, 209 NoWs were for mechanical testing and 213 comprised hand work. To date only 125 or roughly 40% of the operators have responded with a Notice of Completion (NoC), therefore this summary is preliminary.

Based on NoCs received to date, the work completed either was generally less than the applicant had originally planned or was cancelled. In terms of testing and size, the complete breakdown is as follows: 20 programs were inactive, 17 were hand operations, 3 did limited testing, 36 washed greater than 10m³ of material, 30 washed greater than 100m³, 19 exceeded 1000m³ of washed gravel. In terms of significant placer production, only two programs processed in excess of 5000m³ of paydirt. No information is available on the quantity of gold recovered or grade of material washed.

As in past years, the focus of activity followed a well established pattern. The Cariboo was the principal center of activity followed by the Omineca and Hixon areas. Twenty-six programs employed three or more workers, while the majority of programs (99) saw only one or two workers onsite, typically the owner of the tenure and spouse or partner.

Two of the three largest programs, for which reliable information has been obtained, were located in the Germansen Landing-Manson Creek placer camp. J. Hirak and G. Hobson continued to produce from an existing main mine area on the Manson River, and reported 5000m³ of paydirt washed. Meanwhile J. Thomas of Angel Jade Mines completed bulk testing from three pits near Slate Creek, for a total of about 4400m³ of paydirt washed. Encouraging results may lead to a large-scale operation in 2001.

Elsewhere on the Manson River, R. Gauthier completed a modest program of about 1200m³ of production from a single pit. Angel Jade completed several separate programs on different holdings in

Photo 6. Small-scale testing operation conducted by R. Dubie on Goodasany Creek, Omineca region (photograph by David Pow, Inspector of Mines, Prince George).

the camp, including 1150m³ of paydirt developed from 11 test pits on one property, and 420m³ of paydirt from 17 smaller test pits on a nearby property. Both programs sought to identify and confirm continuity of prospective gravel horizons. P. Ewaskow tested 600m³ of paydirt from several pits on his tenure.

Several other noteworthy exploration programs were conducted on properties located peripheral to the main Germansen Landing-Manson Creek camp. V. Pogorevc tested about 1000m³ of gravel on McConnell Creek over a period of 15 weeks. B. Watson washed roughly 1250m³ on his tenure on Twenty Mile Creek and B. Frappier washed about 300m³ of paydirt over a period of 24 weeks on Lost Creek. On Goodasany Creek, R. Dubie washed 700m³ of paydirt extracted from one main mining area and 5 test pits (Photo 6).

The largest program conducted in the Wells-Barkerville region was located on Barry Creek, a small tributary of the Willow River. D. Romonow mined roughly 5000m³ of material from a steep embankment that had previously seen only limited testing. Results were disappointing and the remainder of the planned two year program has been cancelled. B. Scobey and family remained onsite at their Beaver Pass creek site for 10 weeks and processed about 2300m³ of paydirt.

G. Jennex continued limited production, about 2000m³ of paydirt, from an area on Burns Creek where the famous Hatton Nugget was found. Limited testing by the Kleman brothers on Cunningham Creek during the season included about 2000m³ of gravel processed from one main pit, and 3 km of significant road rehabilitation. The Klemans also processed about 300m³ of material on Montgomery Creek in 4 test pits.

Monitor International Corp. continued development of several leases on the Quesnel River, albeit at a much reduced production level. Only about 800m³ of material was processed by a team of three workers over a 4 week period. K. Thompson processed 450m³ of gravel from a claim on the lower Cottonwood River.

A. Bruce mined about 700m³ from 5 test pits on

the Cariboo River. Another operator on the Cariboo River, J. Naychuk, processed about 1600m³ of paydirt from two trenches dug into old dredge workings on an elevated river terrace. Meanwhile, D. Boyes completed 3700m³ of production from 4 large bulk sample pits on the Quesnel River near Buxton Creek.

On upper Cunningham Creek, C. Winther completed 2500m³ of production from several satellite pits. Noble Metals was unable to complete plans for a major stripping program, and settled for limited production of about 500m³ of paydirt from 4 test pits on their large lease holdings on Keithley Creek.

The number of active placer operations during 2000 remained at about the same level as in 1999. However, following a trend that has developed over the past several seasons, the average size of the operation and total exploration expenditures decreased, mainly in response to depressed gold prices and rising fuel costs. Exploration during 2001 will continue to focus on traditional streams and creeks in the Wells-Barkerville, Likely, Hixon and Germansen River-Manson Creek camps.

OTHER INFORMATION

The Prospectors Assistance program awarded grants totalling $53,887 to support seven grassroots exploration projects in the region. The projects targeted a range of commodities including industrial minerals, copper, gold and PGEs.

During the 2000 field season, the British Columbia Geological Survey Branch conducted four programs in the Cariboo region and one in the northern Omineca region. In the Cariboo, Peter Bobrowsky carried out detailed overburden mapping and sampling over a broad area underlain by Slide Mountain terrane rocks north of Wells and a small area southeast of Likely; Fil Ferri mapped the Late Proterozoic to Paleozoic Snowshoe Group south of Cariboo Lake; Gerry Ray and Ian Webster completed a detailed examination of styles of mineralization in the Wells-Barkerville belt, and; Chris Ash conducted detailed structural and geological mapping of accessible areas of the Gibraltar mine. In the Omineca Mountains, Andrew Legun completed a regional bedrock mapping program over an area that included the Sustut copper deposit. Results from these programs are published in the annual Geological Survey Branch 'Fieldwork' volume (Geological Fieldwork 2000, Paper 2001-1) and/or as 'Open File' maps or reports.

OUTLOOK

Exploration activity is expected to continue to increase during 2001, with more projects and higher total expenditures. Exploration and investment incentives that are now available are expected to encourage significant renewed interest in the mineral wealth of the region.

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