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# Tracks & Treads

## *In the Lion's Den*

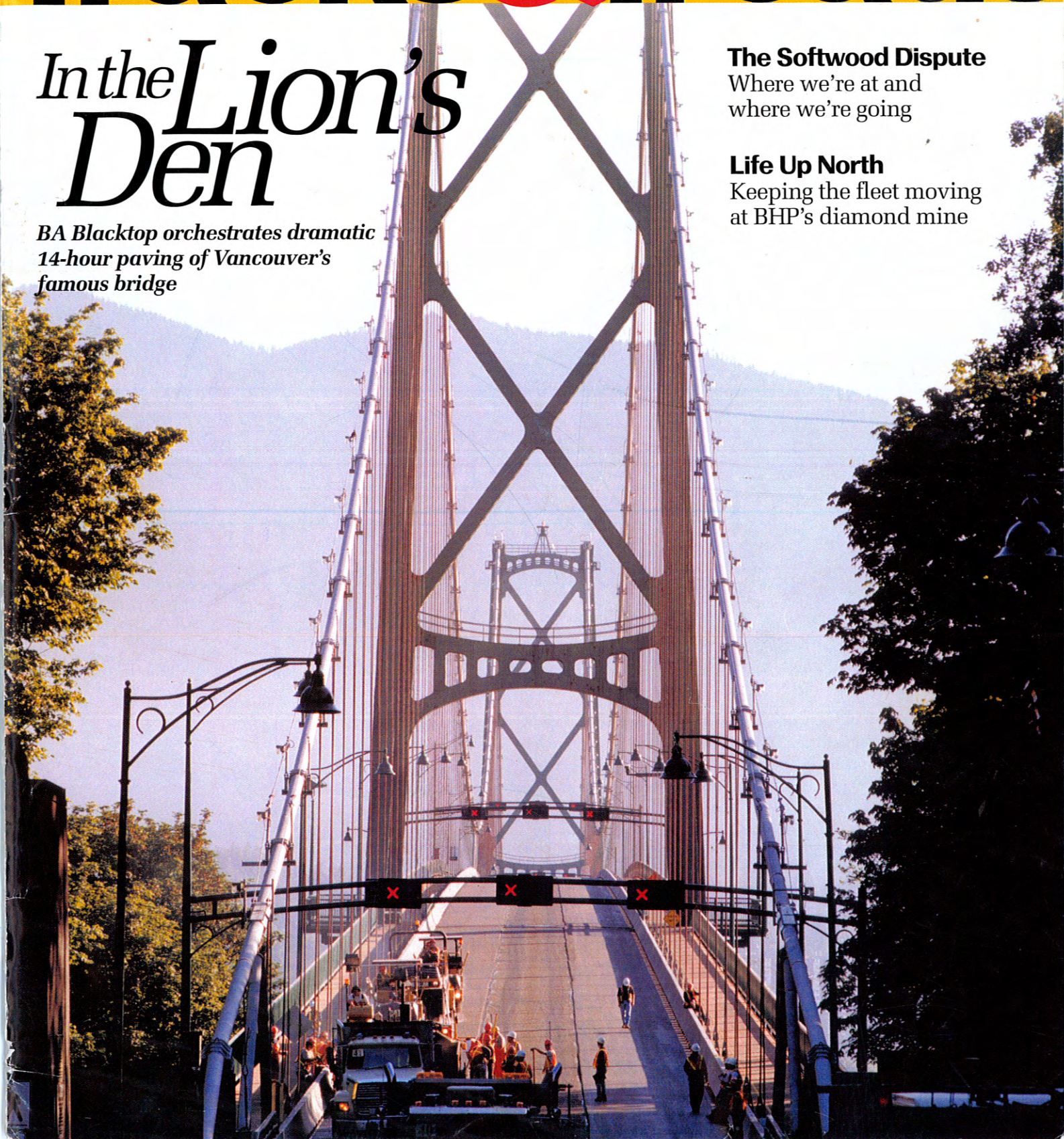
*BA Blacktop orchestrates dramatic 14-hour paving of Vancouver's famous bridge*

### **The Softwood Dispute**

Where we're at and where we're going

### **Life Up North**

Keeping the fleet moving at BHP's diamond mine



The BA Blacktop paving crew does another lane on Vancouver's Lions Gate Bridge last July.



PHOTOGRAPHY BY ADRIAN HARPER

## SYMPHONY ON A BRIDGE

Special epoxy asphalt compound created unique set of challenges on this paving job

BY ALANNA JORDE

An “incredible” sense of satisfaction and relief washed over Martin Logan-Hill as he watched the last truck roll off the viaduct. High atop Vancouver’s majestic Lions Gate Bridge – which spans 1,517 metres across Burrard Inlet and treats 70,000 daily commuters to breathtaking postcard-perfect vistas of the city – he surveyed three lanes of freshly paved bridge deck. The work represented months of team planning, coordination and preparation: the most challenging paving job of BA Blacktop’s 46-year history.

The project was set in motion Wednesday, July 17, 2002. After confirming with Environment Canada that there was no risk of precipitation that weekend, the call was finally made; Lions Gate Bridge would be closed to traffic so paving could begin at precisely 10 p.m., Saturday, July 20.

On Logan-Hill’s cue, cleanup of the bridge deck began the next day under single lane closures. On Friday, the asphalt plant set-up was finalized, paving equipment was readied, an infrared heater was mobilized and 500 sheets of plywood that would be placed to prevent the equipment and trucks from tracking the sticky bond coat material all over the city were delivered to the job site. Between 6 p.m. and 8 p.m. Saturday, equipment was mobilized to the staging area on the Stanley Park causeway at the south end of the bridge, the paving crew assembled and the asphalt plant received the green light to start mixing.

As project manager, Logan-Hill had collected enough data to fill several binders. By his own admission, the management team had “beaten the project to death” by painstaking-

ly plotting every aspect of the job. But moments before trucks were scheduled to roll, Logan-Hill was still scanning his mind for an overlooked detail, a contingency he hadn’t considered. He turned to his colleague, operations manager Kim Percy, and asked, “Have we forgotten anything?”

They were both about to find out the answer.

Paving the storied bridge would have been challenging in the simplest of circumstances, but several factors conspired to make it much more complicated. Logan-Hill and BA Blacktop’s vice-president of operations Kees Van der Werff had traveled to the Far East to research the two-component epoxy asphalt mixture which was to be used, as specified under the terms of their paving contract. The compound has been used in the paving of the 2nd Yangtze Bridge in Nanjing, China, and only 17 other bridges across North America, including San Francisco’s Golden Gate Bridge. The durable compound provides an added layer of protection against corrosion and is known to resist fatigue, rutting and shoving. But it is a finicky mixture to work with. Epoxy asphalt can only be applied to dry road surfaces when the temperature is above 10 C; paving crews must cease and desist at the first sign of moisture.

The target mix temperature at the time of mixing for the Lion’s Gate Bridge job was “121 degrees Celsius, plus or minus two degrees to allow for trucking and dwell time from the chemical reaction of the materials,” notes Logan-Hill.

Crews had 41 minutes to haul the mixture from the asphalt plant 35 km away to the paving machine at the bridge and that’s when the real race against the clock began. There was only an 11-minute window to insert the mixture into





Working overnight, BA Blacktop crews had just 11 minutes to insert, apply and compact the finicky asphalt epoxy mixture.

the paver and apply it before it dipped to 82 C. Then it had to be compacted with a roller before it dropped to 66 C. Otherwise it would spoil and have to be discarded.

"We also had a very close tolerance on the thickness and that's for obvious reasons — too thin, it wouldn't stand up and too thick, we'd be adding weight to the bridge," Equipment Manager Brent Balluff points out. "The bridge has an arc to it, which is no problem in the paving process, but it also has a crown from shoulder to shoulder so that had to be emulated in the paving equipment as well as the sizing of the rollers, that allowed us to properly compact the epoxy asphalt, maintaining the very

crucial thickness tolerance."

Still, the technical challenges posed by the compound paled in comparison to the logistical tango that was necessary to pull off the project. Due to weight restrictions, only three loaded trucks were permitted on the bridge at any given time. That constraint coupled with the temperature sensitivity of the epoxy asphalt mixture meant "the paving operation had to be choreographed on a minute-by-minute basis as any deviance from the plan would result in materials rejection at a considerable cost," says Logan-Hill.

The blended materials, he adds, were shipped from California and the raw materials from Holland. "We didn't

allow for a hell of a lot of waste because the material is sold by the pound. You can only imagine how much it cost to put 600 metric tonnes on the bridge."

It was something to watch. There were six co-ordinators in place to see to it that all trucks and equipment were at their designated spot at the specified time. "At any one time we had two and sometimes three processes going on between sweeping, bond coat application and paving. Aggravating that is the bond coat application wasn't going down at the same rate as the paving," explains Balluff. "The paving was a faster process than the bond coat application (which was applied by hand wand to the pre-paved chip seal surface

at a rate of 0.68 litres per square metre).

"There were times when we had people applying the bond coat in one lane, paving occurring in the other and we're trying to coordinate loaded trucks coming, empty trucks going off, keeping the tracking mitigation to a minimal level while maintaining a paving speed, which was the most crucial part of the whole operation ... it was very, very difficult logistically to get all of that happening without an interruption to the paving process."

All the while, a nervous eye was kept on the morning dew level which crept up a viaduct attached to the bridge. The dew point moved to within about nine metres of shutting down the job. There were a few other hiccups, as well, and Logan-Hill jokes that he could have cried a couple of times. He says the low point was losing two-and-a-half loads of the expensive material.

To complete their tough mission, the lay down crew used a fleet of Caterpillar machines including a CAT AP1050B paver, PS360B pneumatic roller and two CB434 double steel rollers. Another CAT AP1050 paver sat idling on the sidelines ready to be pulled in on a moment's notice. But that proved unnecessary. A Finning mechanic, John Eckert, stood watch over the paver in the event of a problem, but his expertise was not needed.

"I never had to do a thing. The equipment performed flawlessly; the whole fleet did actually," says Eckert, who adds that his part in the project was so free of stress he actually had a chance to enjoy the lovely view.

Finning sales representative Wayne Wyllie turned up on the job site Saturday night expecting to spend an hour or two observing the operation. "I figured everything would go like clockwork," says Wyllie, who helped out at a couple of dry runs at BA Blacktop's North Vancouver yard where "we simulated the bridge deck ... measured it

all out (to determine) exactly what we would have to do."

It was 6 a.m. Sunday morning before he finally left the site.

The self-professed "suit and tie guy" grabbed a shovel and "jumped in" to help out when the epoxy asphalt mixture started to harden up about a half hour after the paving job began. "We couldn't even dig a shovel into it; it was a big mound," Wyllie recalls. Crews eventually solved that problem, but the

the rest of the crew on the bridge received a BA Blacktop-embroidered souvenir golf-shirt that reads Lions Gate Bridge 2002 Deck Paving: Wider, Smoother, Safer.

The two outside lanes each took about two-and-a-half hours in actual paving time; the third lane was finished in four hours due to equipment and traffic restrictions, notes Logan-Hill, who is proud of the way the project team of 54 men and women pulled to-



Rental gen sets helped BA Blacktop tackle the sizable logistical challenge.

mixture continued to be a nuisance.

"The other problem we had was the material was hardening up inside the paver so every hour or so ... we would just have to stop the paver, pickup, clean all that out, get the skid steer in there and get rid of the material, sit back down, load up again, and then go," explains Wyllie.

It was a long night, he continues, adding he was impressed how "everybody pulled together like a big family and a team. Everybody was so excited and pumped about this job." In addition to the fond memories, Wyllie and

together, how everybody worked as one.

Even though the crew was mentally and physically exhausted, once the paving was done at 2:15 p.m. Sunday, everyone helped clean up.

"You can imagine every man and his dog was watching us," remembers Logan-Hill. Once the job was done "they all came up to us and shook our hands and said they couldn't believe what we did out there under the circumstances. It was a great feeling for all of us."

And, as it turned out, adds Balluff, "We proved to ourselves that we actually hadn't forgotten a thing." ■



# Double Happiness

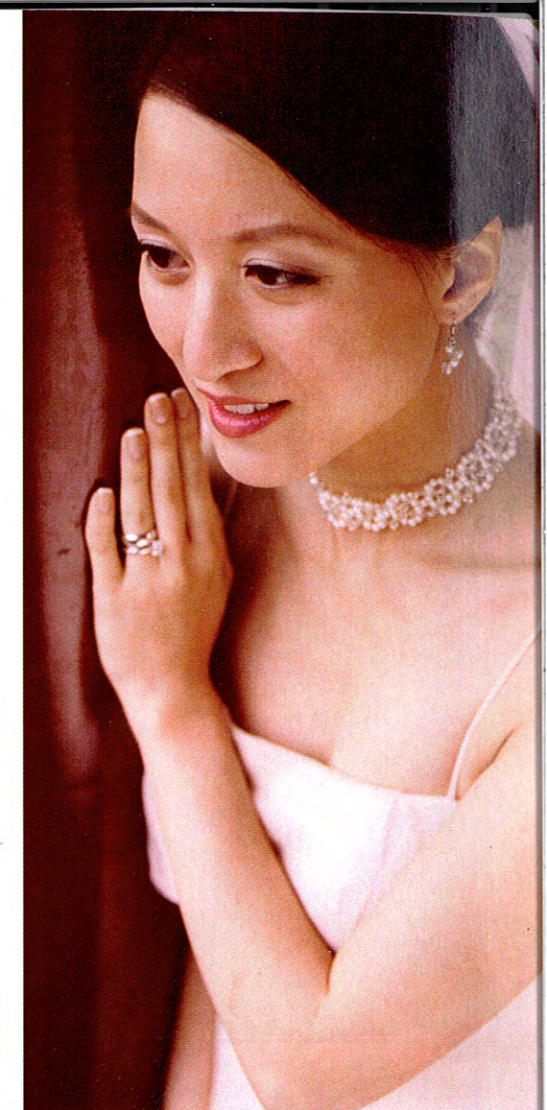
ADRIENNE MAH AND ALBERT LEUNG  
AUGUST 28, 2004  
VANCOUVER, BC

BY ALANNA JORDE  
PHOTOGRAPHY BY CARMEN SCHMID

**A**DRIENNE MAH AND ALBERT LEUNG WERE SERIOUSLY WORRIED about their future together when Adrienne accepted a dream job offer while on vacation in Hong Kong. The Vancouver-born couple had endured a long distance courtship early in their relationship and didn't relish being separated by the Pacific Ocean. But then destiny intervened. Out of the blue, Albert received a call from a headhunter interested in recruiting him for a position at an American bank in Hong Kong. "It was bizarre ... the timing was unbelievable, just right," recalls Albert. "We were so relieved. We felt it was fate for us to be together over here," says Adrienne on the phone from Hong Kong.

Ever the romantic, when Albert finally decided after a seven-year courtship that it was time to propose, he did his homework, surfing the 'Net to find the perfect spot to ask Adrienne to be his wife. On a romantic getaway to Bali, a "confident yet nervous" Albert interrupted the couple's moonlit stroll along the Indian Ocean to pop the question. "It was totally wonderful and unexpected," remembers Adrienne.

The couple toyed with the idea of getting married in the breathtakingly beautiful Bali, says Adrienne, but opted instead to plan the big event for August 28, 2004 in Vancouver where they could share the occasion with family and friends. Albert took care of booking the venues for the ceremony and reception. Adrienne, a project manager by profession, "whipped out a spread sheet" and began planning the other details from overseas. "Thank goodness for email and digital cameras. I don't think we could have done it without them," she laughs, adding that she relied on friends and family in Vancouver to be her eyes and ears. Albert is still amazed and touched by how eager everyone was to chip in and help out. To show their appreciation, the couple presented special gifts of Tiffany silver necklaces to the women and tie clips to the men who helped make their wedding day.



Adrienne and her bridesmaids get ready at the Westin Grand. Bridesmaid Bonnie Leung, (Albert's sister) helps with an uncooperative earring.



(above) Vancouver's granite Holy Rosary Cathedral, erected in 1899, proved to be a fitting location for the couple's ceremony.

(right) Ring-bearer James (4 years old) and flower girl Amelia (2) are escorted up the aisle.

(far right) The newlyweds make their way through Dr Sun Yat-Sen Gardens for their photo session.



Albert had always hoped to have his Catholic marriage ceremony in his childhood parish, but when he learned the church had been sold, the search was on for an alternative site. As his own parents had been married in a Hong Kong cathedral, Albert decided Vancouver's historic Holy Rosary Cathedral would be a most fitting place for his own nuptials. His parents were very pleased with his decision to exchange vows with Adrienne in the ethereal, Gothic-style granite cathedral, which boasts grand architectural features such as a pointed arch, vaulted ceiling, clerestory windows and a 217-foot steeple.

Adrienne commissioned a Hong Kong designer to create her one-of-a-kind, simple yet intricate champagne rose wedding gown featuring layers of organza, trimmed with French lace imported from Paris, over Duchess satin. Trails of lace were placed along the back and bottom to give the gown its very unique butterfly effect. To pay homage to her mother's northern Chinese roots, Adrienne also had a Shanghai tailor sew the traditional Chinese wedding dress (made from fuchsia-pink Thai silk) that she wore at her tea ceremony. For jewelry, she selected a lattice-design choker of fresh water pearls and Austrian crystals that she had custom made in China by a jewelry maker whose only tools consisted of his hands and a piece of wire. Adrienne collaborated with her bridesmaids on the design of their Thai silk cantaloupe gowns with chartreuse accents and matching neck sashes.

Adrienne and Albert chose a modern Oriental theme for their wedding day, inspired by contemporary European-influenced trends that are popular these days in Southeast Asia. The reception was decorated with a palette of deep red and maroon coupled with tangerine and chartreuse green. A single orchid was added to each



place setting, giving it a "special touch," says Adrienne. A cylinder vase exploding with foliage and flowers and containing beaded rocks, floating flowers and two goldfish to symbolize good luck for the couple graced the long reception table at the entrance to the wedding banquet. The couple personally assembled their favours. They spent hours carefully placing chocolates in boxes, which had been specially made in Hong Kong and stamped with the auspicious Chinese symbol for double happiness, and then sealing them with strips of red or gold organza.

"It seemed like eternity waiting for Adrienne to walk up the aisle with her father," muses Albert. Even though he reveals he is a sensitive, sentimental sort of fellow and Adrienne had joked to all of her friends and family prior to the wedding that Albert was going to bawl, he managed to keep it in all day. It wasn't until the couple had the opportunity to spend a few quiet moments alone together prior to their reception that the realization suddenly struck them, "OK, we're married. It's done! After all of the planning we've done and all the years together," says Adrienne.

"Everyone had such a good and happy spirit," says Vancouver-based photographer Carmen Schmid, who captured photographs of the couple on their wedding day. "In spite of this day being probably the only rainy Saturday in August, that didn't dampen their spirits," she adds.

Following the wedding ceremony and a traditional Chinese tea ceremony at the Westin Grand Hotel, about 500 guests feasted on a traditional 12-course Chinese wedding dinner at Floata Seafood Restaurant in Vancouver's Chinatown.

Although it was tough coordinating the event from Hong Kong, "it was the best decision we could have made because that day was beyond anything we could have imagined. We were on cloud nine," enthuses Adrienne. The couple honeymooned in Langkawi, a small island off of Malaysia. "We wanted to go somewhere where we couldn't be contacted so we could rest. We really needed it," says Adrienne. ■

\* For more details on this wedding go to [www.realweddings.ca](http://www.realweddings.ca)



(above) Immediate relatives returned to the Westin Grand for the tea ceremony. Albert's mother accepts a cup of tea.

(below) The reception, at Vancouver's Floata Restaurant, was a 12-course dinner for 500 followed by an evening of festivities and dancing.



The cake, designed by Lelani Galley of North Vancouver's Cause for Celebration, incorporated florals that carried through Adrienne's colour theme.

Venture capital in B.C.

# B.C. opens up competition for investment

### Government loosens rules to attract capital

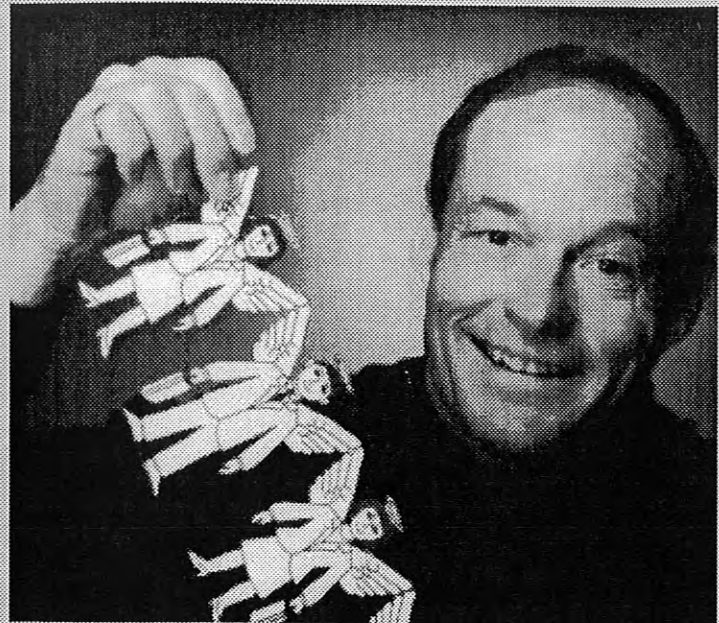
By ALANNA JORDE

British Columbia's venture capitalists have one reason to look forward to more prosperous times.

There's a new, business-friendly government in charge, one that has already loosened rules allowing investors to kick in smaller sums of money to risky new ventures. In addition, the B.C. Securities Commission has cut red tape making it less costly and time-consuming for emerging companies to raise money.

"I think B.C. is taking a leadership position in creating an environment to stimulate investment in emerging companies," says Gordon Skene, president and CEO of FutureFund Capital (VCC) Corp.

The numbers seem to support Skene's assertion. In the first quarter of this year, \$101 million was invested in 18 companies in B.C. compared to only \$59 million during the same period last year, according to the Canadian venture capital research firm, Macdonald & Associates.



Michael Volker says there is a place for government in investing in start-up companies. Volker, who manages an angel investor network, says that in the past, government initiatives bridged the investment gap between 'love' money and angel investors.

The province introduced legislation last May that would open up competition in the labour-sponsored fund sector and ensure greater access to venture capital tax credits. At present, the provincial tax credit is only available for British Columbians who invest in the Working Opportunity Fund (WOF), which is currently the province's largest venture capital fund.

David Levi, president of WOF, welcomes the change as long as it stimulates the venture capital sector, but he is convinced that stimulation will only be achieved if the province removes an existing cap on the amount of money that can be raised by labour-sponsored funds.

It is unclear whether the province would do that, although the Minister of Competition, Science and Enterprise, Rick Thorpe, has said the government isn't through consulting "with stakeholders about further red tape reduction, valuation requirements and investment pacing to ensure that the appropriate protections and benefits for shareholders, taxpayers and government remain in this new competitive environment."

According to Michael Volker, who manages an angel investment network in Vancouver, there are a few successful B.C. companies that probably wouldn't be around today if it weren't for government programs that funnel subsidies and grants into small, growing technology companies.

The federal government, he says, "is doing a pretty good job" of supporting high tech start-ups. But the provincial funding has dried up under the Liberal government and that's unfortunate, insists Volker, because government support has helped "fill the gap between when companies get started with 'love' money and when angel investors come in."

Continued on next page

Venture capital in B.C.

Continued from previous page

In fact, despite the huge strides made in the last decade, the biggest liability in the venture capital industry in B.C. remains that there are still too few players. "And when you talk to them, they'll tell you that they invest in only five out of 1,000 (companies) that they look at so the odds are not good," adds Volker.

And once an emerging company has outgrown its angel capital, he said, one of its only options, if it can't convince risk-averse venture capitalists to invest, is the junior public market.

The wildly successful Vancouver-based biotechnology company QLT, which has developed the only available therapy for age-related macular degeneration, got its start being a junior public company, Volker points out. In fact, B.C. has a tradition of growing fledgling businesses through its public market.

"In the '20s and '30s, the Vancouver Stock Exchange financed a lot of mining and exploration companies. A lot of these companies wouldn't have existed if it weren't for public investors taking a risk on these companies," says Volker.

Still, he finds the turmoil since Toronto took over ownership of the junior public market troubling and he worries that "we may lose it."

On the other hand, however, angel investors are starting to "give venture capitalists a little bit of competition," he suggests.

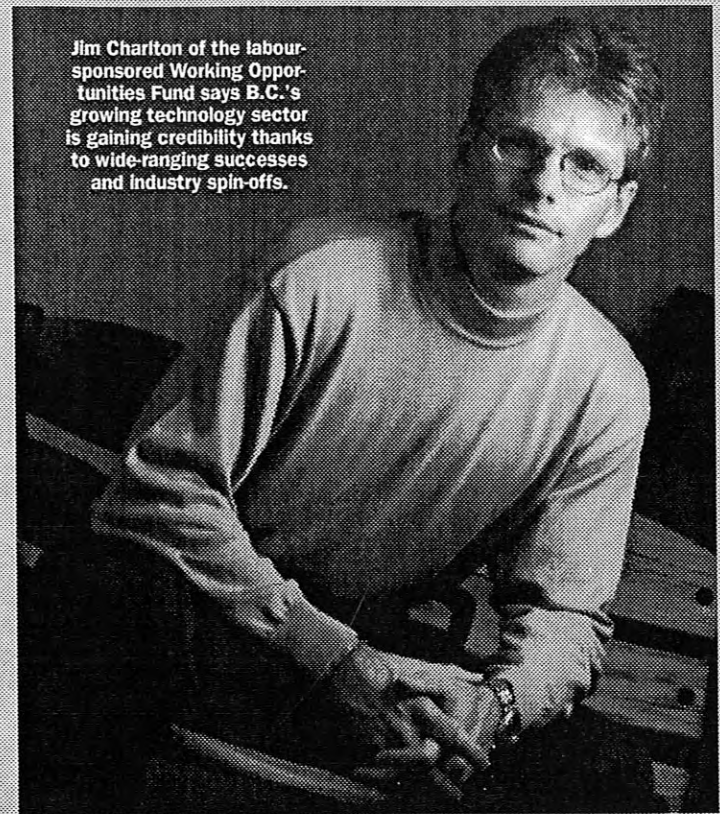
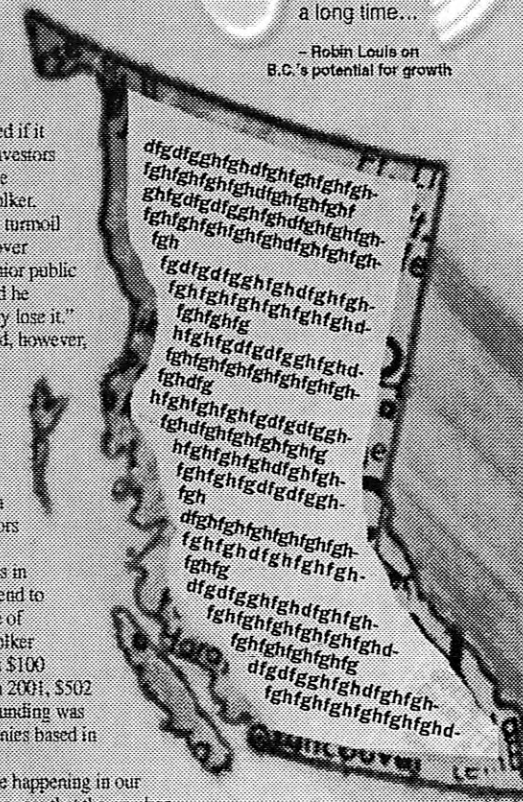
It's difficult to track just how much capital angel investors are injecting into emerging companies in B.C. because they tend to be highly protective of their privacy, but Volker estimates it exceeds \$100 million per year. (In 2001, \$502 million in venture funding was disbursed to companies based in B.C.)

"From what I see happening in our own network, I can guess that the number is growing. It's going to be a pretty major force in this province and we want to nurture that. We want to make sure that the pool of capital grows and that it becomes easier and easier for deals to get done," he says.

When Volker moved to B.C. more than a decade ago, "there wasn't a single technology company doing more than \$100 million in sales." Today, there are more than

...the technology, the cluster of companies, the people, the money and the environment are better than they have been in a long time...

- Robin Louis on B.C.'s potential for growth



Jim Charlton of the labour-sponsored Working Opportunities Fund says B.C.'s growing technology sector is gaining credibility thanks to wide-ranging successes and industry spin-offs.

a dozen and at least two companies generating a billion dollars a year. B.C. is rapidly positioning itself as a potent source of new technology. "(The high tech) community has grown to a point where they've had several successes in several different industries and it has created a bit of a critical mass, so you're getting to see some credibility out here and also some spin-offs," says Jim Charlton, senior vice-president investments for WOF.

"That's where we see a great opportunity for the province, in technology growth. It's an area that is not totally dependent on resources. Obviously, it's knowledge power and we can harness that from the universities."

Bolstered by the prosperity of pioneers like the upstart QLT and Ballard Power Systems, a worldwide leader in hydrogen fuel cell technology, biotechnology and energy technology are two of B.C.'s strengths, agrees Robin Louis, who is president of the province's other flagship venture capital firm, Ventures West.

He says the province has a long way to go before it stacks up against Silicon Valley or Boston but he is quick to add that the fundamentals for growth are all in place.

"I think the basics are here - the technology, the cluster of companies, the people, the money and the environment are better than they have been in a long time because of some of the things the provincial government has done, so I think you'll see more growth here in the future," he says.



Robin Louis, Ventures West