

The mission of BCIT
is to provide
British Columbians
with world-class,
job-ready skills for
career success.

Science and Technology Week '95

Invest in Your Future! DISCOVER...



Students visiting BCIT had a hands-on opportunity to experiment.

said that the training should yield some great results.

Chris Welman, head of software for the computer-generated television show ReBoot, said that the demand for digital content in television programming is going to keep growing and the establishment of the Digital Design Studio is a great opportunity for Vancouver. Students in the audience were encouraged to hear that the industry is growing so quickly that employers are finding it difficult to find the employees they need.



What better way to kick off Science and Technology Week 1995 than with the opening of the new Advanced Digital Design (ADD) Studio, which symbolizes BCIT's commitment to the most up-to-date technology training. The studio is a joint venture between BCIT and the Emily Carr Institute of Art and Design featuring Softimage and Alias 3D animation training.

Science and Technology Week began seven years ago and kicks off with a celebration in a different venue each year. This year the Great Hall in BCIT's new Campus Centre was the chosen venue for a number of reasons. Glen Clark, minister of Employment and Investment, described his role at the launch as

one of the nicer jobs I get to do. "One of the reasons BCIT was chosen for the launch," he said, "was for the kinds of training and education it offers, which are necessary for B.C.'s new science and technology-based economy."

Among the guest speakers were two inspiring individuals who represent the potential for success in the growing industry of computer design and animation. Don Mattrick, executive vice president and general manager of Electronic Arts Canada Inc., described himself as an example of how to get paid to play games and build educational products. Mattrick, whose company has maintained an average 20 percent growth since it began, was encouraged about the new lab and

Following the opening ceremony, BCIT hosted a multimedia trade show with 22 companies participating in the event. Staff, faculty, students and the public toured the show, viewing the latest developments in multimedia including animation, CD ROM and virtual reality.

Continuing with the multimedia theme was a panel discussion in the Great Hall, entitled *So you want to work in Multimedia*. Panel guests included Gerry Moss, vice president Student Services, Shane Lunny, Shane



BOG chair Arun Garg and Hon. Glen Clark cut the ribbon to open the ADD Studio.

Lunny Productions and Steve Gray from software designer Electronic Arts.

Also on site, was the Silicon Graphics magic bus, where visitors had a chance to experiment with the latest computer technology.

—from
Sheila Rees



photos Bert Schendel

ARCS Lab — following doctors orders

An appointment with your doctor typically involves the recording of relevant information such as patient history, current complaints or allergies. Today, most of this data is recorded on paper. As the patient is transferred from the general practitioner to a specialist, a clinic or a hospital, the same

information is often recorded over and over again.

Early in 1994, Shaman Systems Inc., a privately held Vancouver based company, approached the Technology Centre with an ambitious venture - a medical "Outcomes Management System." This system would electronically capture and analyze patient/physician encounter data allowing medical professionals to track and evaluate the effectiveness and efficiency of various treatments and medications.

Once complete the system will use both hand-held computers (Personal Digital Assistants or PDA's) and "desktop" workstations. Typically the PDA will be used to capture and display encounter data while the workstation will be used for patient record storage and analysis of patient treatment outcomes.

"The system will enable physicians to quickly record and capture detailed patient information regardless of where they are - in the office, in a hospital or even at a patient's home," explains Stefan Joseph, project leader. "The system could dramatically reduce the cost of medical care and increase the efficiency and quality of medical treatment."

Shaman's ultimate vision is the creation of a standard nationwide electronic patient record that tracks a patient's medical history from birth to death regardless of



The system will enable physicians to quickly capture detailed patient information.
photo Bert Schendel



Clay Howey(R) and Stefan Joseph(L) demonstrating the Shaman prototype system to Brent Sauder(C), executive director of BC's Advanced Systems Institute, during his visit to the Technology Centre's booth at this year's ASI Exchange.

where the various treatments take place. "Of course Shaman's goal is one that will require much effort and collaboration between government and industry but if they are successful it would be nice to think that ARCS Lab helped them take the first step towards creating a better medical system for Canadians," says Joseph.

ARCS Lab completed a prototype of the system's first PDA module in October of last year and demonstrated the device at the B.C. Advanced Systems Institute's "ASI Exchange" held at the Robson Square Conference Centre in the spring of this year.

—from Kelly Gervais

Deer Lake mural



(L-R) Bob Gunn, Norman Street, Mark Angelo, Don Guthrie and Gary Rosberg.
photo Bert Schendel

This mural was erected as a Rivers Day event and focuses on the importance of local streams as well as the Deer Lake-Burnaby Lake System project, which is being coordinated by BCIT's Fish, Wildlife and Recreation program.

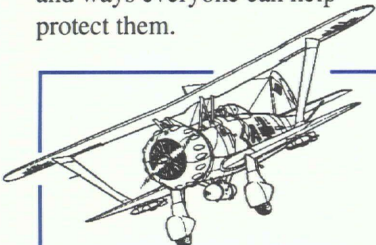
Two important partners in this undertaking are the BCIT Technology Centre and the Friends of the Environment (Canada Trust).

—from Mark Angelo

Oceans and Rivers Day Raises Awareness of Water Issues

The effect each of us has on the aquatic environment was the focus of BCIT's first Oceans and Rivers Day, October 11.

Speakers at the two-hour event included Miranda Holmes of the Georgia Strait Alliance, Mae Burrows of the T. Buck Suzuki Foundation and Robert Gunn, coordinator of BCIT's Burnaby Lake System. Each of them discussed a different aspect of the threats to our water systems, and ways everyone can help protect them.

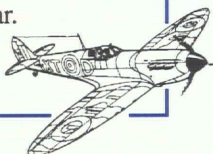


Sea Island Open House
Sat. Nov. 4,
10 am - 4 pm

Visitors can tour the BCIT hangar and walk among jet engines, sophisticated equipment and nearly 20 aircrafts large and small.

Sea Island campus, Vancouver International Airport south, 5301 Airport Road in Richmond.

Go toward the airport's south terminal and follow the signs to BCIT's hangar.



"Quite simply, what we do on land affects the aquatic environment," explains Greg Helton, Student Association Environmental Education assistant, and coordinator of the event.

"Household cleaners, for example, wash down our drains and into the waterways, full of chemicals and pollutants. We're encouraging people to make simple choices, like using baking soda or vinegar and other alternative cleansers - that work just as well, if not better than the commercial cleaners. And in most cases, cost less," he says.

In honor of Oceans and Rivers Day, the Environmental Education volunteers have

painted yellow fish next to all of BCIT's storm sewer grates.

"That's to remind everyone that whatever goes down that storm sewer - garbage, engine oil, whatever - doesn't just disappear. In this case, those things wash into and pollute Guichon Creek," Helton says.

Helton adds that staff and faculty are welcome to join students on the Green Team, a group of volunteers who promote environmental education on campus. Volunteers and exhibit ideas are also welcome for an environment fair being planned for February. To sign up, contact Greg Helton at Local 7060.

—from Karen McDonald

Voice mail hot tips

Helpful hints

- press # to skip a personal greeting
- you cannot skip an extended absence greeting
- give your mailbox number to people who call you regularly from off-campus
 - dial 451-6777
 - enter mailbox number remember: if you are on a shared local, your mailbox number is 9—

- from on-campus
 - dial 6777
 - press *,*
 - enter mailbox number remember: if you are on a shared local, your mailbox number is 9—

—from Gloria Mattie



Quality Resource Center

"If you can't meet world standards of quality, at the world's best price, you're not even in the game."

—Jack Welsh, CEO, General Electric.

To succeed in today's competitive business environment, organizations must focus on doing the right things the first time, on time, and every time. They are also expected to pursue continuous business process improvement to achieve or maintain a leading edge.

"In 1992, two BCIT instructors, Louis Routledge and John Lloyd, conducted a study in this province that identified a need for a resource centre dedicated to quality," explains coordinator Paulo Guedes-Pinto. "It was through their initiative and the support of other local organizations, the Quality Council of British Columbia (QCBC) and the local chapter of the American Society for Quality Control (ASQC), that the Quality Resource Centre, located at BCIT, came into reality."

After obtaining a grant from the National Quality Institute, the

Centre officially opened its doors on January 23, 1995, and, since then, has supported organizations pursuing quality and process improvements by providing advice on the use of quality standards (including the ISO 9000), information on reference materials, training and consultant referrals.

"Our database of contacts and access to numerous information sources through the Internet give us the ability to rapidly respond to client's inquiries," says Guedes-Pinto, who has even provided information about job opportunities for quality practitioners.

The Centre is engaged in special projects such as the QCBC's Quality Awards, and a NRC-IRAP research to identify quality improvement tools for local industries.

The Centre also facilitates seminars. The next event will be the Quality Practitioner's Forum on October 30 and 31, where Guedes-Pinto will make a presentation on process improvement in engineering and BCIT's President, Brian Gillespie will present a lecture on quality in education.

For more information on the B.C. Quality Resource Centre, phone (604) 451-6822 or e-mail to pguedes@bcit.bc.ca.



First Aid treatments, then and now:

While reading a 1913 ambulance handbook published by St. Andrew's Ambulance Association, it is interesting to note that when dealing with burns, part of the treatment has not changed over the years. The stop, drop and roll method of extinguishing clothing flames and saturating with water is essentially the same. However, the following treatment is drastically different.

Today we apply a water soluble ointment, yet the recommendation back then was to prick the blisters, if any, with a needle and apply some greasy dressing (vaseline, lard, olive oil, carbolized oil or carron oil, which is a mixture of linseed oil and lime water) on strips of lint or linen, placing layers of cotton wool above them. In this day and age we know that applying greasy ointments only continues the cooking of burns and instead, you should apply cool or cold water.

A fun test is to boil two eggs. Leave one on the counter and run cold water over the other one. Wait about 20 minutes. The egg in cold water will have a runny yoke while the one on the counter is now hard-boiled.

Owning a basic first aid kit and knowing how to use it can mean the difference between life and death.

The home first-aid kit is the prize for October's question and was generously donated by Acklands Ltd./Safety Supply Canada.

—from Safety and Security



SPECIAL TECHNOLOGY CENTRE EDITION

Interview with Norman Streat, director, BCIT Technology Centre



Norman Streat, director BCIT Technology Centre

photo Bert Schendel

*"We're starting
research
and
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considered."*

When the Technology Centre was established in 1989 it opened BCIT's doors to industry. Primarily, we provide access to the institutes expertise, equipment and facilities and collaborate with industry clients on applied research projects that address industry problems. We also serve faculty and students by supporting internally initiated projects.

In addition to conducting R&D the Technology Centre provides assistance and guidance to new and growing companies, and we run the Venture program, which is designed to guide entrepreneurs through the critical planning and launch of a new business.

How has response from industry changed since the Centre opened?

When we first opened nobody knew we existed or what we could do. Over the past few years we have developed a reputation for ourselves, particularly with respect to the Applied Research in Computer System (ARCS Lab) and our Health Applied Research program. The process of becoming known hasn't happened overnight but we now have clients knocking on our doors as a result of things they've heard about us in the community.

How has industry benefited from work done at the Centre?

We've provided many smaller companies with access to affordable expertise and facilities that would not otherwise have been available to them. As a result they were able to find practical solutions to their company problems.

Larger organizations have also benefited from our help. Sometimes companies with in-house R&D operations need specialized skills for a limited time to develop a solution to a one time problem. Or, in the case of London Drugs, we were able to help them solve an environmental problem by developing a new technology. They are now very close to owning a patent based on the technology we developed.

How can BCIT faculty become involved in R&D going on at the Technology Centre?

Basically faculty can get involved in three ways. If they want to work on the projects we do for our industry clients, they can register themselves in our directory of expertise from which we match specific skills to the projects that come in.

Faculty can also approach us directly if they have an idea for a personal project. The Centre has provided support and encouragement for a limited time to a number of faculty-initiated projects. We have also worked with faculty to find industry partners or government programs to help fund their projects.

Finally, faculty can become involved in student projects.

How does what is going on at the Centre affect the students?

We support student projects at various levels, whether it is providing funding for the equipment, supporting the student project fair, offering prizes or even advice on intellectual property protection.

We can also help students who began an industry project for a

course and who wish to continue afterwards. Basically, if the project looks good and the sponsor is interested, we will do the administrative work necessary to keep the student on.

Further, if any students want advice on how to develop their ideas or how to deal with their sponsor, then we are more than willing to talk to them and give them advice.

What direction is the Technology Centre moving towards for the future?

Over the past six years we have established two strong areas of expertise within the Technology Centre. These are the ARCS Lab and the Health R&D program. I now want to develop more.

We already have some promising starts. We recently hired an engineer with a background in advanced materials. She will be initiating product development projects using various materials such as metals, plastics and ceramics. Anne McCannel from BCIT's Food Technology program has joined our staff on a part-time basis. She has been involved in the development of several processed food products for ethnic markets and is moving into setting up taste tests for industry clients. Last spring we opened a new chemical engineering lab geared towards research in environmental protection.

We're starting research and development projects in areas we never considered when we opened, and I plan to continue to develop expertise and facilities in innovative fields.

— from Norman Streat
Sheila Rees
Kelly Gervais

Building bricks and solving problems

BCIT is leading the way in an international project to help people in developing countries build their own permanent structures. The Technology Centre is coordinating several departments in research and development of the mud-brick ram, a hand-operated device that works on a lever principle.

The ram compresses a mixture of soil, cement and water into a mould, which forms the bricks. The long lever handle is then placed into another position which lifts the brick out of the press. The brick is left to dry and harden in the sun. The bricks are used in construction of homes and other buildings in Africa and elsewhere.

The project was first brought to BCIT by Rob Brynjolfson of the Worldwide Evangelical Crusade, a non-profit organization involved in more than 60 developing countries.

Peter Thomson, director of the Entrepreneurial Centre, says the mud-brick ram project was accepted by the BCIT Steel Fabrication and Industrial Education programs because it provided the students with a variety of relevant challenges. "They must analyse the problem, conceptualize solutions, prepare working drawings and actually fabricate the revised brick rams with a design, doing a layout, cutting the material and welding it together. It requires a good mix

of skills, and as a student project, it is sufficiently challenging so they like it," says Thomson.

The two starting type prototypes, constructed at BCIT and based on a Spanish design, have one major problem: they cannot be easily transported because of their weight.

"They're made out of steel, and they're very heavy. They have to be shipped halfway around the world," says Ian Mathie, an instructor at the Industrial Education Teaching Centre. "What we intended to do with these prototypes was to look at the operation of the machine and see how we could modify it to make it more efficient and more easily fabricated."

Now that the prototypes are built, Mathie says the next step is the analysis phase: getting the students to focus on more efficient design and material issues.

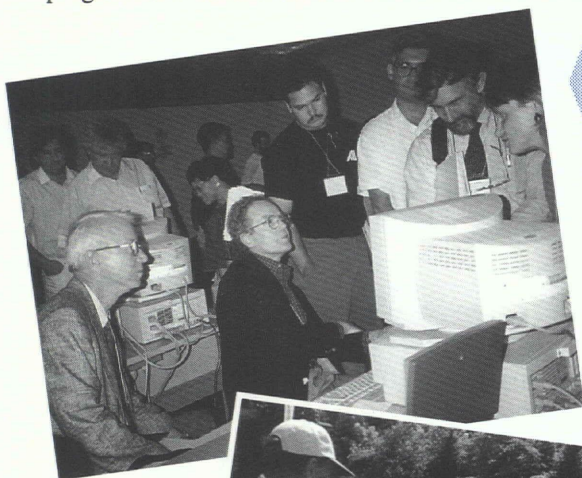
Thomson says the Technology Centre is looking for more such real-time projects for students at BCIT to tackle, and encourages those with suitable challenges to contact the Centre. "Solving real problems is good for the students. When the result goes out into the real world and is used, it always beats a textbook," says Thomson.

—from Bohdan Gembarsky

SPECIAL TECHNOLOGY CENTRE EDITION

Transferring technology in and out of BCIT

Part of the BCIT Technology Centre's mission is to assist industry through technology transfer. The Centre fulfills this goal in part by providing industry specific training through its Summer Institute programs and local and international Conferences.



Participants shared experiences with new technology and demonstrated new multimedia programs and features.

Slice of Life participants prepare for a kayak lesson



Tom and Maryanne Nowak, social coordinators for the conference, enjoying a sunny break.

photos compiled by Suzanne Stensaas, Cornell Medical School

Willy Wonka would be proud

"Ever wonder how they get the filling inside those exquisite little chocolates you buy at the specialty store?"

Ever wonder how they get the filling inside those exquisite little chocolates you buy at the specialty store? Well, thanks to BCIT Robotics and Automation assistant instructor Gordon Thiessen, there is an answer that has increased productivity and cost effectiveness for Le Chocolat Belge Daniel.

"It all began several years ago," explains Thiessen, "when a group from industry were touring BCIT's Robotics lab. One of the guests mentioned that the kind of technology we were using might be helpful to his friend who owned a chocolate factory." The technology in question was a flexible manufacturing cell that took raw materials at one end and produced a finished product at the other.

The problem Thiessen set out to solve was how to automate the labor intensive process of making chocolates, without having to replace the original moulds. "It would have been possible to go out and buy a machine that was already on the market, but that would have meant all new moulds and the

Summer Institute Programs

The Summer Institute Programs deliver very specialized technical upgrading to employees in specific industries. They differ from other BCIT programs in that they are designed by industry for industry. An industry steering committee determines what is needed and the Technology Centre brings together BCIT's skills and resources to coordinate the event.

The programs are a proven way of generating funds to keep labs and equipment current as all net proceeds from the Summer Institute programs flow back into the relevant BCIT programs.

"Summer Institutes are a 'win win' opportunity for industry. Employers can keep their employees current and when hiring new BCIT grads, be

confident that they are skilled in the latest technology," says Peter Thomson, director of the BCIT Entrepreneurial Centre.

Three of the Technology Centre's most successful programs include the Pulp & Paper Summer Institute, the Wood Products Summer Institute and the Natural Gas & Petroleum Summer Institute.

Local & International Conferences

Over the six years the Technology Centre has been in existence, BCIT has played host to many local conferences. Most conferences are coordinated with the support of an industry association and, like the Summer Institute programs, proceeds from the conferences flow back into relevant BCIT programs.

In an effort to provide opportunities for BCIT faculty and students to gain exposure to technology issues in industry and expose BCIT to people around the world, the Technology Centre plans to host more international conferences in the future.

One of the Centre's most successful international efforts took place this year in June. The 6th annual Slice of Life Conference, coordinated by Griff Richards and Lynn Larsson of the Technology Centre and Tom Nowak from the School of Health Sciences, brought over

250 health educators and developers from around the world to BCIT. The Conference mixed practical technology with medical education. Taking advantage of BCIT's equipment and facilities, participants shared experiences with new technology and demonstrated new multimedia programs and features.

"Many faculty members volunteered their time to help organize the event, host our colleagues from out of town and take advantage of this wonderful professional development opportunity," says Griff Richards, co-host and organizing chair.

The five day conference included a buffet dinner with the beluga whales at the Vancouver Aquarium and a "Grand Extravaganza" which began with an afternoon on Bowen Island and ended with a dinner cruise back to Vancouver at sunset. "We

were overwhelmed with hospitality, generosity and beauty. I declare this the best ever Slice of Life Conference," wrote Dr. Suzanne Stensaas, annual program chair, in a thank you letter to BCIT.

"This was the first time I organized an international conference but I have attended several during my years at BCIT and have always wanted to bring back the expertise and contacts to my colleagues. This conference was a wonderful opportunity to do just that, but it was also great to show off BCIT's world-class contributions to health sciences education," says Richards.

The 7th annual Slice of Life Conference will be held in Copenhagen next spring, but the Technology Centre has already been asked to host this event again in the very near future.

—from Kelly Gervais

company had already made a significant investment in their moulds," he says.

When Thiessen decided to undertake the project, he approached BCIT's Technology Centre for support. Thiessen had previously worked in conjunction with the Centre on a project for Tree Island Industries to manufacture nail and wire products, and knew what kind of support was available.

"The outcome was a combination of different ideas all coming together," say Thiessen, who is currently carrying on the automation process to the next level. "Eventually the chocolate company wants to automate their entire process, but they are doing it the right way, one small bit at a time." For Thiessen this means a new project to automate the actual process of creating the chocolate shells or getting the chocolate into the moulds.

It also means an awful lot of sample chocolates, just to make sure the process works of course.

—from Sheila Rees



Gordon Thiessen samples the fruits of his labor.

photo Bert Schendel

SPECIAL TECHNOLOGY CENTRE EDITION

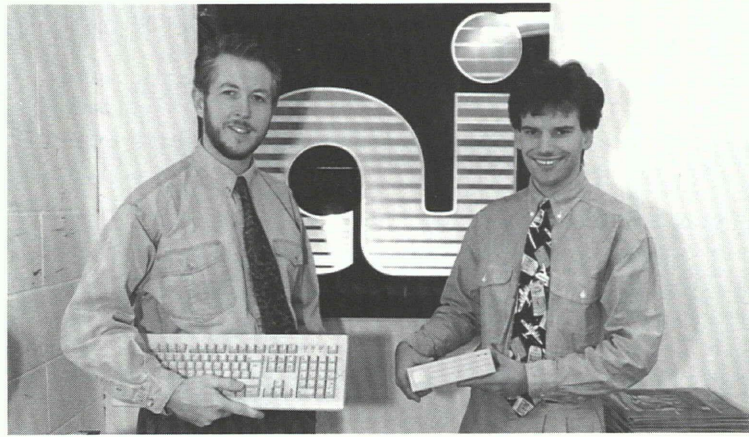
Venture grads taking care of business

John McMahon set a goal early in life to own and operate his own business by the time he was 25 years old. In 1991, with his 25th birthday fast approaching, John set out to realize his goal. With a strong technical background, but no first-hand business experience, he needed help. He quit his job, turned down an opportunity to work in international sales and enrolled in the BCIT Venture program.

Together with his partner, BCIT Electronics graduate Stephen Nofall, McMahon now runs

Cadence Digital Audio. Their company designs and manufactures products for the live entertainment business. So far, business has been great and with the upcoming launch of a new product the future looks bright.

"The industry feedback we received in the 12th week of the program was invaluable. Every criticism of my plan turned out to be absolutely true. It made all the difference in the world to the success of my business," he says.



(R)Chris Holmes, Abbott Integration Systems Inc., 1992 Venture program graduate. photo Mike Gdowski

Chris Holmes' career in computers began with Apple Canada at age 15, after stepping out of a crowd at a trade show to fix a problem the Apple technicians were unable to solve themselves. His computer expertise was vast, but, he knew nothing about the business when he began the Venture program.

Chris and his partner spent months analyzing the Canadian personal computer market. After graduating from the program they formed Abbott Integration Systems in January 1992.

Abbott Integration Systems specializes in manufacturing, private labelling and distribution of high quality, value-added peripherals for the Canadian and international personal computer markets. Sales last year were \$1.1 million

and are expected to double in the upcoming year.

"The success I have achieved was made possible by my experience and training in the Venture program," says Holmes.

Ellen Diva-Mosher, Lazy Bay Cafe and Bakery, 1990 Venture program graduate with her partner. photo Bert Schendel

Ellen Diva-Mosher was a partner in the successful business Capers, a restaurant and retail food outlet specializing in organic foods, when she left to start a similar business of her own.

After completing the Venture program in 1990, she realized her original idea was too broad for the resources that were available to her. Through the program Ellen was able to narrow her focus, resulting in a smaller, more manageable business.

Together with partner Kathy Duchane, Diva-Mosher runs the Lazy Bay Cafe and Bakery in North Vancouver. In its third year, the business is already making money and sales are climbing every year.

"We're so busy that it's difficult to keep up with the demand. Some speciality breads are so popular that people actually phone ahead to reserve them," she says.

—from Kelly Gervais



The Venture Program:

The numbers are in — and it works

Consider the implications of starting a new, small business in Canada. Chances are, the new business will not be around five years from now. A Dunn and Bradstreet study showed that 60 percent of small businesses in Canada fail within the first 18 months, and that losses from failed businesses are estimated at \$350,000 per business.

The Venture Program is designed to help prepare entrepreneurs for the challenges of starting and running a business. Each year the program conducts a research study of its own and the numbers are in for 1995.

This year's study tracked the progress of 124 Venture program graduates and once again produced some impressive results:

- 55% are successfully established in their businesses.
- 17% expect to be established within the next year.
- 15% established and then discontinued their business.
- 0% failed — business was legally declared bankrupt.
- The remaining 12% have put their venture on hold.

"Some entrepreneurs go through the program and realize



Three successful Venture program graduates recently shared their experiences in a round table discussion with a group of new entrepreneurs. photo Bert Schendel

that their idea isn't going to work, that they just aren't cut out for the life of an entrepreneur, or that their original idea needs some modification. These individuals have ended up saving themselves perhaps \$50,000 to \$100,000 because of what they learned being in the program. We consider those cases successes as well," says Peter Thomson, director of the Entrepreneurial Centre.

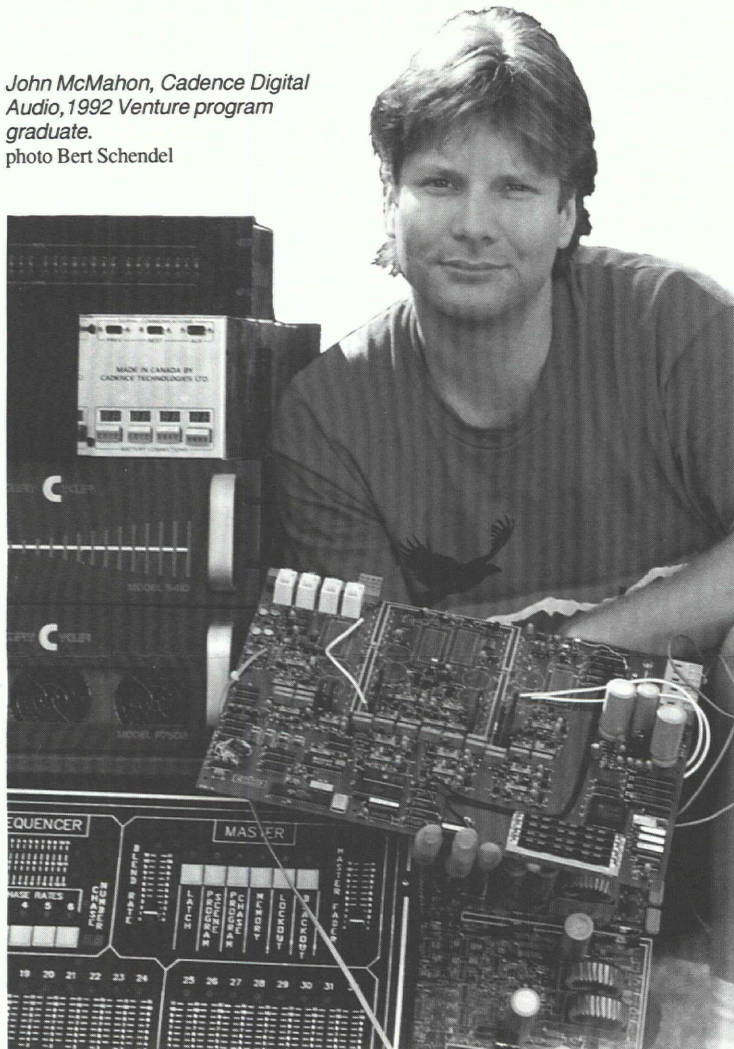
Businesses established by Venture program graduates employ 155 full time, 135 part time, and 147 contract employees.

A confidential revenue survey was sent to all Venture program graduates who have established businesses. Average annual revenue of the 46 out of 78 businesses who responded was approximately \$432,500 in 1995.

"The Venture program is a three-month program for individuals with a burning desire to establish and operate an independent business," says Thomson. "It's intense, it's full time, it's 'real world', and it works."

—from Kelly Gervais

John McMahon, Cadence Digital Audio, 1992 Venture program graduate. photo Bert Schendel



Top-ten list

Peter Thomson, director of the Entrepreneurial Centre presents BCIT's budding entrepreneurs with his top-ten list of the most needed inventions:

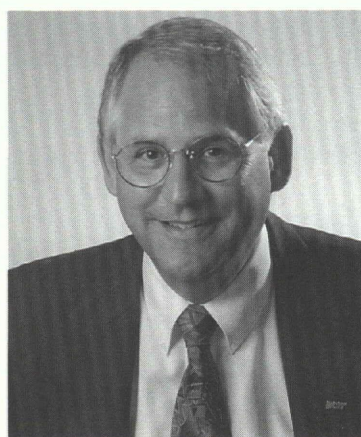
10. A decoder that will block out anything related to the OJ trial.
9. A remote neutralizer for the t.v. remote control.
8. A punch clock with alarm that rings at curfew if teenagers aren't home in time to shut it off.
7. An automatic disconnect timer for teenage telephones.
6. A jamming device for cellular phones in restaurants
5. A vacuum cleaner plug that doesn't come unplugged when you're vacuuming.
4. Front spoilers that retract automatically before they crunch the parking curb.
3. An alternative to coat hangers.

2. Nail clippers that collect the clippings.

And the number one much needed invention is...

1. a cellophane wrap dispenser that works.

Peter is at work on the next ten most needed inventions, and invites you to send your pet peeves to the Technology Centre. Please supply your name and department, and watch for your biggest headache in upcoming editions of Update.



Peter Thomson counts them down.

SPECIAL TECHNOLOGY CENTRE EDITION

On the verge of a medical breakthrough

The Technology Centre is on the verge of a breakthrough medical procedure that delivers life-saving fluids through bone marrow.

The current method of treating patients in life and death situations is to access the central circulatory system intravenously. This treatment is made difficult or impossible under emergency conditions like heart attacks, car accident injuries or drug overdoses because often the circulatory system shuts down and the veins collapse.

BCIT and the PYNG Medical Corporation have designed and tested the prototype that will provide a faster, more reliable treatment by accessing the circulatory system through the bone marrow.

"BCIT is under contract to do much of the scientific and medical research for PYNG Medical Corporation," explains David Johnson, a physicist who has been the cornerstone of BCIT's involvement.

Johnson, along with colleague Judy Findlay and Pyng Medical Corporation, have designed the prototype and are in the midst

of testing its success. Johnson predicts that they are within six months of testing the device on live human adults.

"We have been testing the prototype on human cadavers," he says. "The tests have been very successful and we have no reason to believe there will be a problem testing it on live adults."

The concept is actually about 50 years old, however until recently it has not been an accepted medical procedure. "It wasn't until about five years ago that it became an allowable procedure for infants," Johnson says, explaining that because infants' veins are so tiny the option of treating emergencies through bone marrow seemed to be the only viable alternative.

The bone used in infant procedures is the tibia, located between the knee and the ankle. The adult tibia, however, is far too solid for the intraosseous (inside bone) infusion, so the research team had to locate another suitable bone.

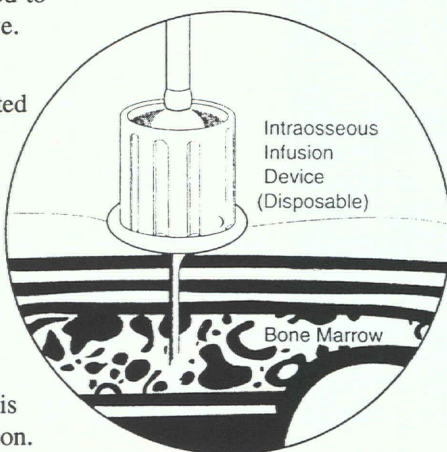
"We think the best place to use it is the sternum, which is the breast bone," says Johnson.

"There are some risks and concerns with using this area, so we must produce a system that provides zero risk."

BCIT joins UBC, SFU, the Vancouver Hospital Foundation and the provincial government in a venture to create a Medical Devices Development Centre, located at Vancouver Hospital, for the development of new medical devices in B.C. The intraosseous infusion system is one of several high profile projects that will bring success to this new Centre.

For more information on the Health Applied Research and Development program, call (604) 432-8761.

—from Crystal Sawyer



Making waves

The pronunciation of "ultrasound lithotripter" may not roll gracefully off the tongue at first, but David Johnson of BCIT's Technology Centre hopes the medical device will become well-known for its ability to destroy kidney stones and gallstones with sound waves.

Lithotripters have been around for two decades, but have been very expensive to purchase, install and operate. A typical machine costs as much as \$1.5 million to buy, around \$250,000 to install — including the creation of a special room for the device with proper wiring and plumbing — and another \$100,000 per year to maintain.

Johnson says a new ultrasound lithotripter being developed by Lithomed Technologies Inc., can be bought for about \$400,000, and requires no special space. In fact, the ultrasound machine is mobile enough to be rolled down a hallway. Nor does it need special plumbing or wiring.

"The difference is in the source of the high-pressure sound waves," Johnson says. "The source in this case is 50 tiny ultrasound loudspeakers that are mounted and driven together, and point at the same place. When they all get fired at once,

they send a little pulse of sound that converges on the stone inside the person and busts the stone up," says Johnson.

The pulses are repeated several hundred to a thousand times over the course of approximately fifteen minutes. Johnson says the process breaks up the stone into a fine powder that is easily eliminated from the body.

Many patients in the Lower Mainland must now wait for the single lithotripter in B.C., located at Vancouver Hospital and Health Sciences Centre, formerly known as Vancouver General Hospital. Johnson hopes the development of the ultrasound lithotripter will mean more access for those who need the technology.

"It's intended to make this therapy available to a lot of small- and medium-sized hospitals that, up until now, decided they simply couldn't afford to have one and have sent their patients to where it could be done. People from outside Vancouver would have to book a hotel room and wait to have the process done."

Human tests on the ultrasound lithotripter are about to begin at Kelowna General Hospital.

—from Bohdan Gembarsky

Strengthening links between education and industry

One of the Technology Centre's goals is to provide meaningful opportunities for students and faculty to gain exposure to technology issues in industry. The Technology Centre and the School of Engineering Technology have developed a strong industry-sponsored student projects program, which last year involved 967 students in 420 projects. The Centre is now developing a province-wide network and a design competition for students in the health technology industries.

As an instructor of a project course in the BCIT Biomedical

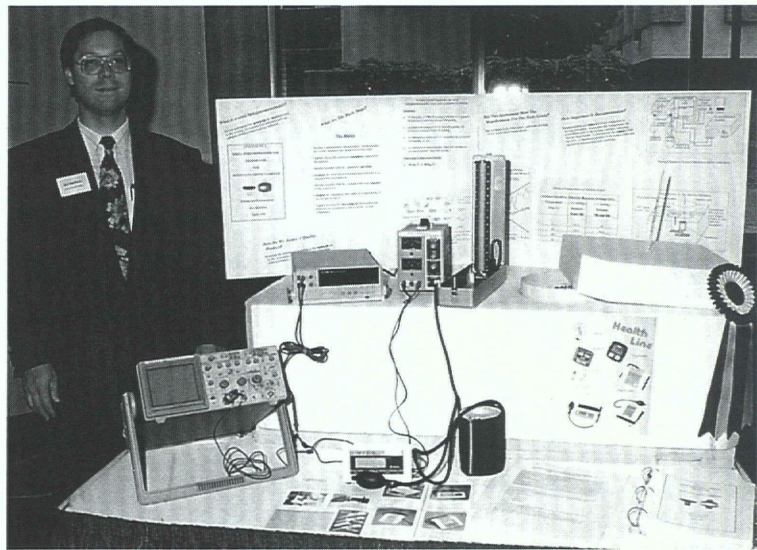
Engineering program, Judy Findlay, Project Leader for the Technology Centre, recognizes the value of industry-sponsored projects to both students and industry. She is also aware of the many obstacles facing both. "First of all, there is no easy way for students to find potential projects and no easy way for companies and institutions to make their needs known to students and faculty. Second, both parties may not have access to resources or support for dealing with questions that arise regarding things like patents,

confidentiality and intellectual property," explains Findlay.

With a grant from the Science Council of British Columbia, Findlay and projects assistant Cora Price are coordinating a unique initiative called Project Partnerships for Health. They are developing a province-wide network that will link faculty and students in all B.C. post-secondary institutions with interested companies and institutions in the health technology industries. Project Partnerships for Health will create the infrastructure to bring students and industry together to conduct needs-based applied R&D projects.

A database of close to 1300 industry contacts has been created and will form the pool from which industry sponsors will be drawn this year. The database has already yielded over 25 potential projects for students to choose from this year.

By strengthening links between education and industry everyone benefits. "Students get to apply their knowledge to solving real-world industry problems and an opportunity to network with potential future employers. Industry sponsors are able to access faculty-supervised student creativity and talent in solving a problem or exploring



BCIT Biomedical Engineering student Ray Battilana with his project completed for industry sponsor Bonso Electronics of Burnaby last year.

photos Bert Schendel

a new idea. Many industry sponsors have discovered new approaches or new technologies that have ultimately benefited their companies," says Findlay.

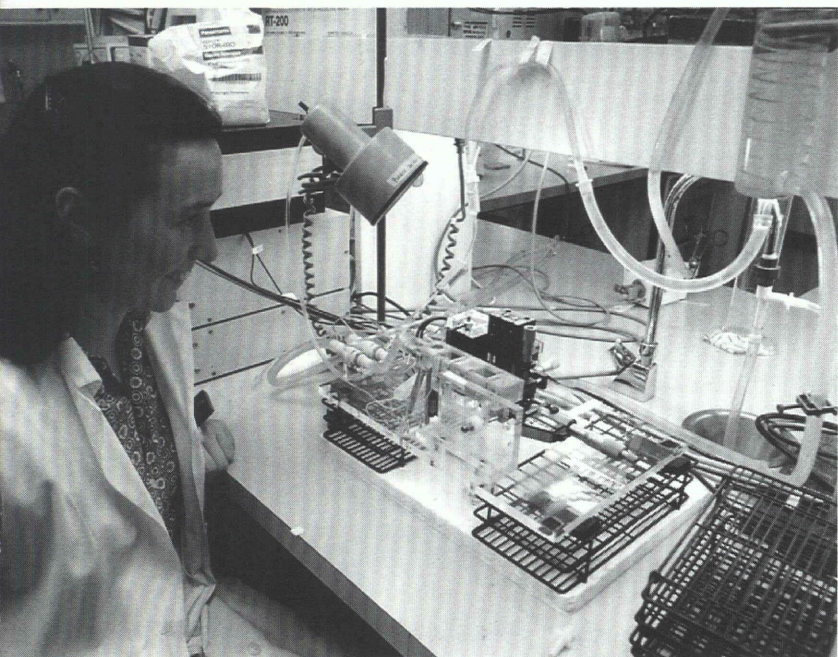
The Technology Centre, together with B.C. Rehabilitation Society, is also coordinating the 96 Solutions + design competition. All post secondary students in B.C. conducting projects involving technology-based solutions to health-related needs are eligible to participate. Competition winners will receive cash awards at a Project Exposition and Awards Ceremony held at Science World on April 27, 1996.

Industry projects for the January term should be submitted by the end of November. Student applications to participate in the 96 Solutions + design competition must be submitted by February 29, 1996.

For more information about Project Partnerships for Health and the 96 Solutions + design competition contact:

Cora Price
Projects Assistant
BCIT Technology Centre
Ph: 451-6989 Fax: 432-0286
email: cprice@bcit.bc.ca

—from Kelly Gervais



Judy Findlay investigating student project opportunities on a recent tour of research labs at St. Pauls Hospital.

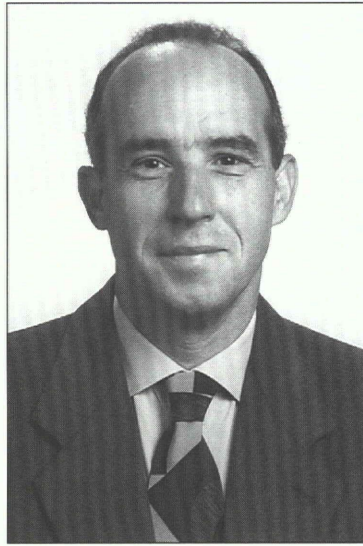
Technology Centre welcomes new ITA

BCIT's association with the National Research Council (NRC) represents one of the longest and most beneficial alliances the Technology Centre has developed to date. For eight years the Technology Centre has provided a home for two Industrial Technology Advisors for the Industrial Research Assistance program (IRAP). These representatives provide technical assistance to small and medium-sized businesses.

Nick Fong, a former instructor in BCIT's Biomedical Engineering program, has held one of the ITA positions since 1989. The second position is rotated among BCIT instructors on a yearly basis as a professional development opportunity.

Ted Marchant, instructor from the Machinist Group, just completed a successful one-year term. The Technology Centre now welcomes Gino Simeoni from Cooperative Education as his replacement for 1995/1996.

Gino says he is looking forward to the year ahead. "I see this position as a wonderful opportunity. I am evaluating



Gino Simeoni, new Industrial Technology advisor with the Technology Centre.

photo Mike Gdowski

new products and ideas, meeting lots of interesting people from industry and best of all, I'm having fun!"

Each spring the Technology Centre looks for applicants among BCIT employees for this unique temporary position. If you want more information about this opportunity contact either Nick Fong or Norman Streat at the Technology Centre.

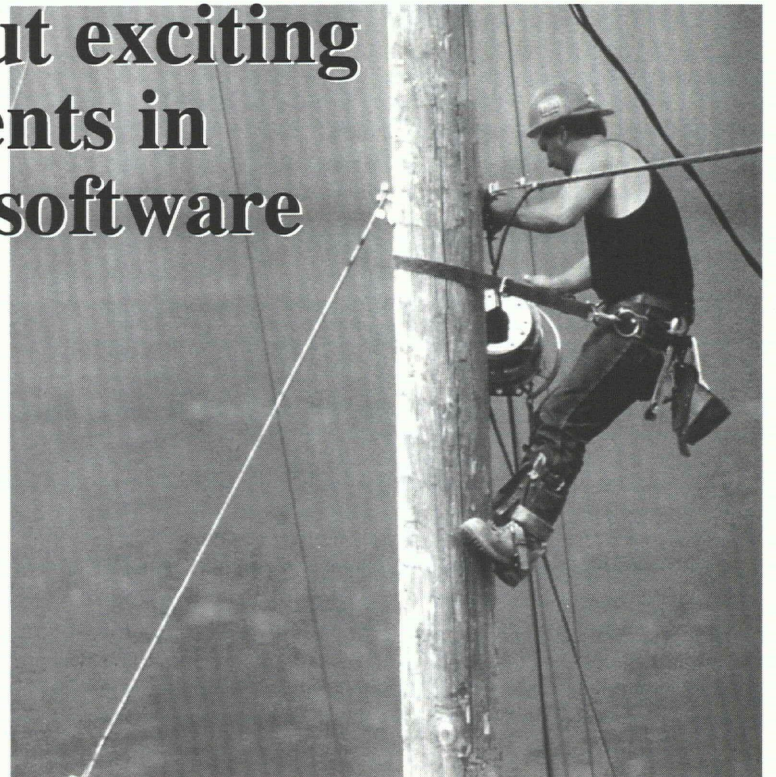
—from Kelly Gervais

Turning out exciting developments in computer software

The Technology Centre's Applied Research in Computer Systems (ARCS) Lab offers B.C. industry a unique opportunity to investigate new technologies and develop innovative leading-edge software systems. The ARCS Lab team is currently working on a number of exciting projects.

Graphical user-friendly Interface — Powertech Labs Inc.

Power engineers have developed a large software package over the past 10-20 years to simulate the electrical power system. Such systems can be very large, and may include hydroelectric generators, transmission lines and the users of electric power. Simulators are used to predict how the system will behave, for example, in the event of major faults. Powertech Labs Inc. subcontracted ARCS Lab to develop a user-friendly graphical interface and to ensure the system is capable of running in a distributed environment with various distinct operating systems.



Telephone network simulation software — BC TEL

Keeping track of phone calls and how they are routed in the BC TEL network is important for operations in general. Simulating scenarios with hypothetical phone calls and alternative network topologies helps in deciding how to continuously adapt the telephone system to the changing needs. ARCS Lab is currently developing a software package to allow BC TEL to perform such simulations and observe the outcomes.

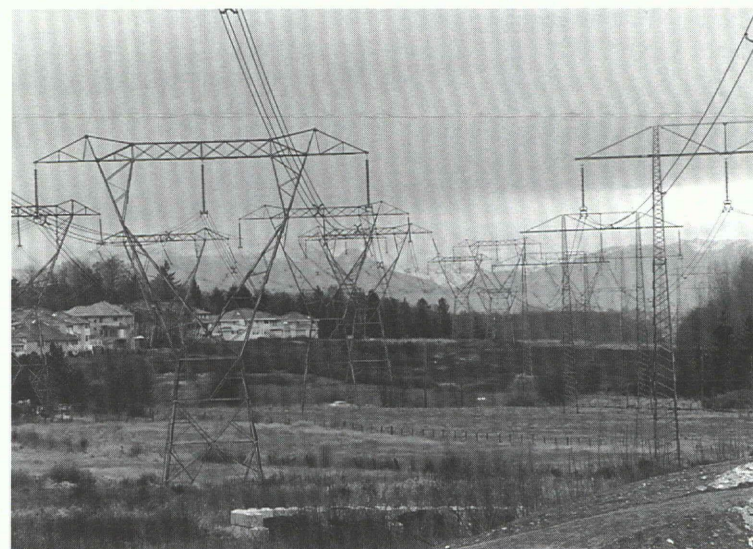
Boiler & Process Simulator — BCIT department of Power Engineering

BCIT Power Engineering is developing a proposal for the development of a simulator software package that will be used for local and distance education offered by BCIT. The department subcontracted ARCS Lab to assist in developing this proposal and overseeing the software developments of the successful bidder.

Power grounding and quality — BC Hydro

ARCS Lab is in the process of developing a multi-media software package that will assist an instructor in teaching electricians and linemen the various electrical effects and their consequences. The package will include various scenarios for both residential and commercial circumstances and will demonstrate the various effects of poor grounding, open circuits etc.

—from Kelly Gervais



photos courtesy BC Tel, BC Hydro

Media Studio

at the forefront of successful web pages
www.check it out!

Media Studio and the ARCS Lab designed a www site for the Geological Sciences department at UBC. Media Studio developed a navigational model with graphics icon interfaces and html scripting. The site was recently voted best UBC web site by students.

Check it out.

www.geology.ubc.ca/home.html

With creative direction and graphics support from Media Studio, Digital Media Productions (DMP) launched the Free Internet Hockey Pool for fans around North America. With a Grand Prize of \$10,000 dollars and extensive media coverage, it is expected to be one of the hottest and busiest web site during the hockey season. Angele Beausoleil, graphic developer for Media Studio, developed a navigational plan and implemented it with fun button graphics to assist hockey pool players to reach the 'locker room'.

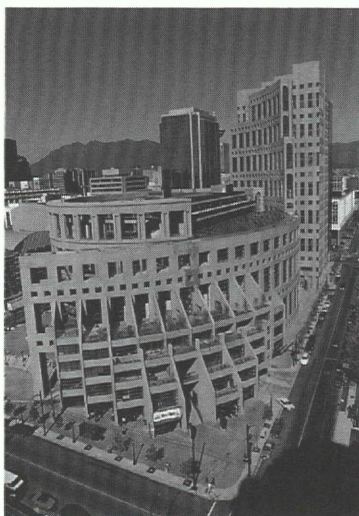
Check it out.

www.hockeypool.com

Media Studio is also working closely with the Vancouver Public Library to develop a cohesive web site for all library patrons. The project involves extracting content from printed materials, digitizing photographs of all library branches, mapping floor plans, and creating an innovative browser graphical interface.

Check it out early next year.

—from Kelly Gervais



Vancouver Public Library will be on-line early next year.
photo Bert Schendel

Projects, Projects, Projects!

Exciting Applied Research opportunities
coming soon to the Technology Centre

Virtual driving — Community Therapists Inc.

Examining the feasibility of using virtual reality as a means of assessing driving performance.

Brush tip electrode — UBC Industry Liason Office

Developing the manufacturing process for the Brush Electrode, an electrode with increased signal processing capability for recording muscle impulses. Used for diagnostic and research purposes.

Multimedia Prototypes — KinderActive Softbooks Ltd.

Developing a multimedia prototype for a CD ROM based musical coloring book for children aged 2 to 5.

Distance education — Networks of Centres of Excellence (NCE)

ARCS Lab will participate in NCE national research and development projects on distance education, involving SFU and other universities across Canada.

Red Cedar Extractives — Independent researcher

Investigating the possibility of using elements found in extraction's from Cedar trees as natural preservatives.

Study on Decubitus Ulcers — Dynawave Medical Technologies

Exploring the use of applied low-level electrical currents to treat non-healing skin sores called Decubitus Ulcers.

Clinical testing — Bonso Electronics

Performing clinical tests on a new desktop blood pressure monitor that takes readings from the subjects wrist.

Interactive CD ROM's — various clients

Creating interactive CD ROM's for various clients in the publishing industry from their successful picture books.

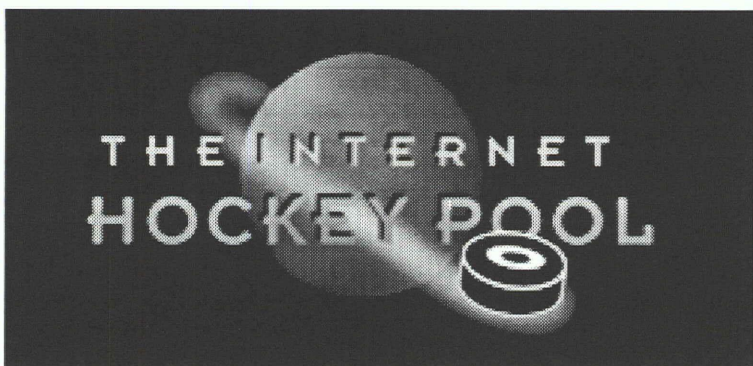
Product testing — Louisiana Pacific Canada Ltd.

Research and testing of various pulp & paper products.

The Back Toner — Kinex Inc.

Developing a lower back exercise machine to strengthen and train muscles and prevent injury.

—from Kelly Gervais



BCIT Events to Come

Wednesday, Oct. 25

- October scholarship and entrance awards ceremonies in Town Square from 1145 to 1315.
- Book and bake sale in the library foyer (SE14) with all proceeds going towards the United Way. Sale begins at 1130. Baked goods will be for approximately two hours and the book sale should last until 1600.

Thursday, Oct. 26

- Chili dog day in SW3, outside of room 2080. Chili dogs are priced at \$1.75 and plain dogs at \$1.25.

Friday, Oct. 27

- Wrap-up event for the United Way campaign in the RIX Club at 1600

Wednesday, Nov. 1

- Official opening of the Student Association Campus Centre building in the Campus Centre Great Hall at 1230.

Saturday, Nov. 4

- Sea Island campus Open House, 1000 - 1600 Demonstrations in aircraft electronics and maintenance will be held throughout the day. Call 278-4831 for more information. Vancouver International Airport south, 5301 Airport Road, Richmond.

Wednesday, Nov. 8

- All-staff forum with President Brian Gillespie to discuss planning. Session begins at 1130 in the BC Tel Theatre, IBM building.
- Health Part-time Studies Open House, 1330-1530 at the old location of the bookstore (SE14).

Thursday, Nov 9

Friday, Nov 10

- Facilities Administrators Conference: Achieving quality thorough technology. Presented by the College and Institute Facilities Management Personnel of BC. In Town Square A,B,C,D and the Great Hall from 0800 to 1530. For further information contact BCIT Physical Plant.

Tuesday, Nov. 14

- Staff Service Recognition Dinner, 1830, Rix Club.

PROFILE

Dividing time between the classroom and lab

Dividing her time between the Technology Centre and the Food Technology program keeps Anne McCannel busy, but she is more than enthusiastic about the hard work that goes along with her jobs. "Not only do I love teaching, but the professional development gained through the work I do at the Technology Centre is excellent."

McCannel's work with the Centre began as an extension of Directed Studies projects that required her technical knowledge. "I am fairly active in the B.C. food industry," explains McCannel, "and my involvement with a technical association and the networking possibilities can be very helpful for the students." "She also says that being involved with industry-sponsored projects allows her to keep on top of what is happening in industry."



Anne McCannel

photo Mike Gdowski

While McCannel says there has been a large number of excellent student projects in the Food Technology program since the introduction of Directed Studies three years ago, she cites one particular project as an example

of the student's hard work. "Last year a company that produces a health food oil was concerned about the precipitation in the product. The project allowed students to identify it and to come up with some potential

solutions for how to prevent it," she says.

Meanwhile, McCannel has recently completed a project for the Technology Centre that she is really excited about. Although confidentiality issues prevent her from describing specifics, she can say that the project involved looking at extending the shelf life of a product using modified atmosphere packaging. "Basically this means packaging the product and adjusting the atmosphere within the packaging to slow down the respiration rate of the product," describes McCannel.

She is currently working on new project proposals for the Technology Centre and looks forward to Directed Studies projects beginning again next January.

—from Sheila Rees

Being treated like royalties

"It's terrific, like icing on the cake!" said George Arato after receiving a royalties cheque last month from Dr. Norman Streat, director of the Technology Centre.

In 1990, London Drugs Ltd., the largest photo finishing processor in Western Canada, approached the Technology Centre with a unique challenge: to develop a cost-effective and environmentally friendly process for purifying photofinishing effluents. The centre hired Arato to work full-time on the project. Over a period of four years he invented a filtration process that all but eliminates chemical waste from photofinishing operations and connects to virtually any in-store photofinishing machine.

"Generally the Technology Centre charges it's clients just enough to cover our costs but in this case the agreement included royalties. Since George was



Norman Streat presents George Arato with a royalty cheque from London Drugs Ltd. photo Bert Schendel

specifically hired to do this project the collective agreement entitles him to a percentage of the royalties we negotiated," explains Streat.

Arato will receive 37 percent of royalties earned from the London Drugs project. His first

check was relatively modest but if London Drugs sells the systems to others in the photofinishing business, Arato and BCIT could be in store for much larger installments in the future.

—from Kelly Gervais

Directory of Expertise

The expertise of BCIT faculty and staff is crucial to the success of many applied research projects taken on by the Technology Centre.

Last year the Centre created the BCIT Directory of Expertise. The directory lists the names and profiles of BCIT faculty and staff interested in conducting applied research projects with industry. It is an excellent tool for attracting industry clients from all areas and enables the Technology Centre to keep faculty and staff informed of research opportunities in their fields of expertise.

The response from faculty has been very positive. The

directory now includes close to 100 records representing almost all of BCIT's programs.

Faculty interest and involvement is vital to the Technology Centre because it allows us to explore applied research opportunities in fields other than our own major niche areas. If you want to conduct applied research at BCIT and are not already listed in the BCIT Directory of Expertise call:

Kelly Gervais
Ph: 451-6823
Fax: 436-0286
Email: kgervais@bcit.bc.ca



**United Way
of the Lower
Mainland**

The way to help
the most



Please recycle your BCIT Updates in the white paper recycling bin.

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