

UBC REPORTS

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Charles Ker photo

Zoology student Paul Guerette has been dissecting orb-weaving spiders for his doctoral research. His work, published recently in the journal *Science*, is aimed at finding out what makes spider silk as strong as steel and as flexible as rubber.

PhD student unwinds secrets of spider's silk

by Charles Ker

Staff writer

Spider webs are almost pure protein so it's no wonder that spiders consume their creations before they move on.

Spider web proteins have been consuming PhD candidate Paul Guerette since 1990 as he has tried to unravel how spiders produce silks ranging from Lycra-like elastic fibres to fibres as strong as steel.

For the first two years of his doctoral work, Guerette researched the physical properties of webs by collecting them in the Endowment Lands and measuring their strength and elasticity back in the lab. In January of 1993, he switched his focus to molecular genetics in an effort to explain their phenomenal properties.

It turns out that silks are made from amorphous proteins that are cross-linked and reinforced by tiny crystals. The degree of cross-linking and reinforcement determines the nature of various silks.

For instance, dragline silk, which spiders use to dangle and to frame their webs, contains 20 to 30 per cent crystal by volume making it stiff, strong and

tough. Spiral silk, which form the capture portion of a web, contains less than five per cent crystal by volume which creates low stiffness and high flexibility.

Guerette says the factors influencing the formation and size of crystals include the structure of proteins, control of the genes that encode these proteins, and the chemical and mechanical processing of proteins during spinning. His investigation into these factors led him back into the Endowment Lands where, to date, he has collected about 300 orb-weaving spiders. (*Araneus diadematus*).

Orb-weaving spiders spin seven different silks expressed through seven distinct glands, each containing a specific protein or proteins. In Prof. John Gosline's biomechanics laboratory, the 27-year-old zoology student dissected the different gland types under a microscope and froze them with liquid nitrogen so synthetic DNA copies could be made later. Guerette has cloned a family of seven genes that encode the various protein sequences in the orb-weaving spider's silk repertoire.

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Study shows

University grads fare better in job market

by Gavin Wilson

Staff writer

University academic programs should be expanded in B.C. because they produce graduates who have greater success in finding jobs and earn better wages than graduates of community colleges or vocational and technical schools.

This is the conclusion of new study called *The Economic Benefits of Post-Secondary Training and Education in B.C.: An Outcomes Assessment*, written by UBC economist Prof. Robert Allen.

Using census data and Statistics Canada surveys, Allen measured the labour market

success of post-secondary graduates based on actual outcomes—who finds jobs and what salaries they earn.

Allen's study refutes the findings of the B.C. Labour Force Development Board's report *Training for What?*, which last fall recommended a large expansion in technical and vocational training programs over academic university programs.

The board, an agency of the B.C. Ministry of Labour and consisting largely of business and labour representatives, based their findings almost entirely on an inadequate job forecasting model rather than actual labour market outcomes in B.C., Allen said.

As a result, their conclusions were "seriously off the mark," he said.

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For the complete report, see Page 8

Picasso's Woman author receives Award of Distinction

by Gavin Wilson

Staff writer

Rosalind MacPhee, author of *Picasso's Woman: A Breast Cancer Story*, is this year's winner of the UBC Alumni Award of Distinction.

The award is presented each year by the UBC Alumni Association in recognition of outstanding international achievements by a UBC graduate. Previous recipients include Pat Carney, Rick Hansen, Pierre Bertin and Nathaniel Nemetz.

MacPhee is being honoured for her extraordinary accomplishments in raising awareness of breast cancer through her book, speaking engagements and advocacy work with the Canadian Breast Cancer Foundation, B.C. Chapter.

Picasso's Woman is a courageous, unsentimental account of her personal struggle with breast cancer, a devastating disease that strikes one in every nine North American women, many in the prime of their lives.



MacPhee

"Our university has produced many graduates who deserve recognition for their accomplishments. Ros MacPhee's accom-

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Jobs

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"The board takes it almost as a matter of faith that technical trainees get jobs at high wages that use the skills taught in their programs, while arts graduates, for example, face high unemployment and find only low wage work in jobs that do not use their university training.

"In fact, however, these impressions of labour market outcomes are grossly inaccurate," Allen said.

Statistics Canada figures quoted in Allen's report show that unemployment rates are actually higher for graduates of technical and vocational programs than for almost all university programs, including most arts program.

The study also demonstrates that university graduates almost always earned higher incomes than graduates of other post-secondary institutions.

For example, women with bachelor's degrees in almost every field

earn more than women with community college or technical and vocational training. This includes humanities graduates.

Men with university degrees, meanwhile, often earn less than men with technical certificates in their 20s, but generally surpass them by a large margin as they get older.

And while it is true that fine arts graduates do make less than other graduates, earning high incomes is not necessarily the primary motivation of many of these students. In fact, humanities students who aimed for a high income generally got one, while those less motivated by financial reward generally earned lower incomes.

The report also questions the notion that teaching people specific skills is better than teaching them general ones. Allen found that even among graduates of technical and vocational

programs, few use the skills they learned in school on the job.

"This is not an indictment of academic university programs that never claimed to teach skills tailored to particular jobs," Allen said, "but it is a serious challenge to technical and vocational programs whose sole rationale is providing employment-related training."

As well, arts programs are far more effective for teaching broader employment skills such as writing and speaking, he said.

Training for What? also claimed that arts and science graduates cannot find jobs, so they re-enter the education system seeking technical training.

Allen said that while it is true that about five per cent of students in technical and vocational programs already have university degrees, the reverse is also true. Nearly eight per cent of university students have previously earned technical and vocational diplomas.

"Many students take more than one program because they are searching for what is right for them. The fact that university graduates enrol at BCIT is no more reason to shrink UBC than is the converse a reason to shrink BCIT," Allen said.

Award

Continued from Page 1

ishments are, by themselves, worthy of note. But she has done her remarkable work while facing the ultimate human challenge, and has performed spectacularly. She is an inspiration to us all," said Debra Browning, Alumni Association past-president and chair of the awards committee.

Picasso's Woman was published by Douglas & McIntyre to wide critical acclaim. It has won

Spider

Continued from Page 1

"We found that all proteins cloned to date are genetically related and there is an evolutionary basis for that relationship," says Guerette. "The way spiders control the physical properties of silk is through differential gene expression within different glands."

Guerette plans to take the bits of gene he has cloned and engineer them into a special strain of yeast. The yeast, in turn, will use its own natural processing mechanism to express silk proteins in the same gooey form as is found in spider glands. This goo from the glands becomes a fibre at the molecular level when the spider pulls on the substance causing the protein chains to align and crystallize.

Guerette says all seven genes cloned share a nearly identical portion of each other's protein sequence. He adds this bit of sequence will allow researchers to review genetic libraries and probe out silk genes from the other 25,000 to 30,000 species of spiders. Since many of these species have evolved in different ecological niches, they presumably produce fibres that may have dramatically different, but equally phenomenal, properties from those produced by the orb-weaving spider.

"Because we have an understanding of how spiders control the physical properties of their silks we have the potential to start engineering fibres as flexible as a rubber band, as strong as a steel rod or anything in between," says Guerette. "How we apply this new knowledge is limited only by our imagination."

the Canadian Authors Association literary award for non-fiction and CBC literary prize for best personal essay. Now in its third printing in Canada, it will soon be published in the United States, Germany, Norway and Israel.

MacPhee received her bachelor's and master's degrees in Fine Arts at UBC, majoring in creative writing. *Picasso's Woman* began as a short personal essay for an undergraduate class and later became a book-length master's thesis.

MacPhee is also the author of three books of poetry and a short novel, *The Paris Notebook*, which won the University of Toronto Norma Epstein Literary Award for Fiction.

A unit chief and paramedic with the B.C. Ambulance Service in Lions Bay, she was named Lions Bay's Citizen of Distinction last year, only the second person to receive the honour.

No Calendar.

Please note, there will be no Calendar in the next *UBC Reports*.

The Calendar returns with the June 13 issue.

(Deadline for submissions is noon, Tuesday, June 4.)

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Con • grad • ulations

The May 23 *UBC Reports* will be a special Congregation issue highlighting the achievements of more than 5000 UBC graduates.

Many special guests, family and friends are expected on campus for this event. More than 40,000 copies will be distributed.

To reserve advertising space in this popular issue, call 822-3131 by noon, Tuesday, May 14.

Notice to

UBC Staff Pension Plan Members

Your Pension Board is pleased to invite you to the Annual General Meeting of the UBC Staff Pension Plan to be held Thursday, May 23, 1996, from 4 p.m. to 5:30 p.m. in IRC Lecture Theatre 5 of the Woodward Building, 2194 Health Sciences Mall.

Refreshments will be served. Free parking passes will be available at the door.

Edwin Jackson

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UBC REPORTS

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Stephen Forgacs photo

Waste reduction coordinator Mary Jean O'Donnell predicts the introduction of blue bins and a new recycling truck will increase the number of cans and bottles recycled on campus.

Big blue bins take bite out of campus waste

by Stephen Forgacs

Staff writer

UBC's Waste Reduction Program is poised to take an even greater chunk out of the waste UBC generates with the purchase of a recycling truck and implementation of a recycling program aimed at cans and bottles.

"The new truck and the new blue recycling bins will improve our ability to recycle glass, cans and plastics as well as the paper products we're already collecting," said Mary Jean O'Donnell, waste reduction coordinator. UBC collected 750 metric

tonnes of paper for recycling in the past year.

"At UBC, we generate enough garbage each year to fill the War Memorial Gymnasium to the rafters and to overflow the Empire Pool," she said.

Prior to the purchase of the truck and the distribution of the blue recycling bins, which began April 29, collection of cans and bottles was done through a few central locations.

"The amount of cans and bottles we collect has been growing gradually each year since 1991," O'Donnell said. "Now, as recycling on campus becomes more convenient, we expect to see a tremendous increase in the volume of material recycled."

The Waste Reduction Program has set a goal of reducing UBC's waste by 50 per cent by the year 2000 through recycling or waste reduction initiatives. Although UBC recycled 27 per cent of its waste last year, O'Donnell said UBC faculty, staff and students are going to have to make an effort to be waste conscious in order to reach the goal.

Two different sizes of blue recycling bins with wheels are available for collection of recyclable materials in offices and work areas that have access to an elevator or are at ground level. Smaller boxes and recycling bags are available for areas without elevator access.

The recycling bins represent one of several initiatives underway through the Waste Reduction Program. In an effort to encourage people to be more waste conscious, standard waste-paper baskets are gradually being replaced with mini garbage cans and centrally located bins in offices across campus.

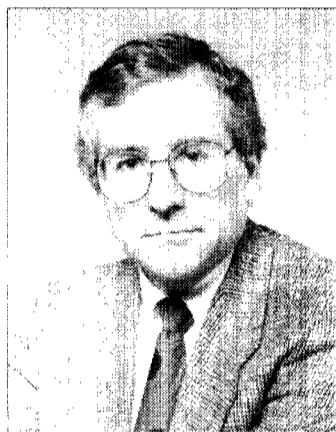
"The mini garbage cans encourage people to think about the waste they're generating," O'Donnell said. "Although some people are sceptical when they first see them, the program has been very successful in reducing waste in areas where the cans are in use."

Alumnus returns as Medicine dean

Dr. John Cairns has been appointed UBC's new Dean of Medicine effective Oct. 1, 1996.

Cairns, currently a professor and chair of the Dept. of Medicine at McMaster University, is a UBC graduate who went on to a distinguished career as a clinician and researcher in the field of cardiology.

"We are delighted that someone with Dr. Cairns' reputation as a researcher, clinician and administrator is joining us as dean of Medicine," said UBC President David Strangway. "The fact that he is one of our out-



Cairns

standing graduates only adds to our pleasure in welcoming him to campus."

He replaces Dr. Martin Hollenberg, who steps down after serving for six years as dean.

"We are indebted to Martin Hollenberg for his years of leadership and dedication. He has made a tremendous contribution to teaching and research at the university," Strangway said.

Cairns graduated from UBC's Faculty of Medicine in 1968 as president of the Medical Undergraduate Society, winner

of the Hamber Gold Medal for highest standing in the graduating class, and the Hamber Scholarship for highest standing over the four-year course.

After serving for several years as an intern, resident and research fellow at Royal Victoria Hospital in Montreal, Cairns joined McMaster in 1975 as an assistant professor. He became a full professor in 1985.

At McMaster, Cairns heads or is a team member of research projects into heart attacks and other aspects of heart disease that have attracted major funding from government and industry. He has extensive publications in his area of research.

As well, Cairns is an attending staff physician at McMaster University Medical Centre, Hamilton General Hospital, and holds an associate appointment in McMaster's Dept. of Clinical Epidemiology and Biostatistics.

His clinical activities have been primarily in acute coronary care, cardiac catheterization and arrhythmia. He has directed coronary care units at two McMaster hospitals and was co-ordinator of the regional cardiovascular program prior to becoming chair of Medicine.

Cairns is also a fellow of the Royal College of Physicians and Surgeons of Canada and a member of numerous professional associations and scholarly journal editorial boards.

Master teacher Abbott to be Pharmacy dean

Prof. Frank Abbott has been named dean of the Faculty of Pharmaceutical Sciences as of July 1, 1996—the 30th anniversary of his appointment to the faculty.

"We didn't have to look far afield to find the right person," said UBC President David Strangway. "Dr. Abbott has won the respect of students and peers for a career marked by truly outstanding teaching and research. He has the leadership qualities to guide the faculty into its second 50 years."

Official celebrations for the faculty's 50th anniversary take place May 31 to June 3.

Strangway also praised the work of outgoing dean John McNeill whose many accomplishments include overseeing the introduction of Canada's first Doctor of Pharmacy Program (PharmD) in 1991. McNeill served as the faculty's fourth dean for close to 12 years. He steps down to continue his internationally renowned research on the development of vanadium compounds for the treatment of diabetes.

Born in Saskatchewan, Abbott received his Bachelor of Science in Pharmacy and MSc from the University of Saskatchewan and a PhD from Purdue University.

He joined UBC's Faculty of Pharmaceutical Sciences as an assistant professor in July 1966 and became a full professor in 1987. Abbott is head of the Division of Pharmaceutical Chemistry and holds an associate position in the Faculty of Medicine's Dept. of Pediatrics.

Dr. Abbott has worked for many years on the metabolism of anti-epileptic drugs. In 1993, he was recipient of the Canadian Association of Faculties of Pharmacy McNeil Award in recognition of his research contributions.

Abbott is the inaugural and five-time repeat winner of the graduating class in Pharmaceutical Sciences' Master Teacher Award, and has also won the UBC Teaching Prize in Pharmaceutical Sciences and the Bristol-Myers Squibb Award for excellence in teaching.



Abbott



Teaching trends

Teaching Support Group

Excellent teachers give colleagues helping hand

by Connie Bagshaw

Staff writer

If you were a busy faculty member and noted for your teaching excellence, would you work without pay?

That's exactly what members of UBC's Teaching Support Group have been doing since the program's inception in 1991.

"Participants in the group tell us time and time again that they volunteer because they really value teaching," said Alice Cassidy, a faculty associate in the Centre for Faculty Development and Instructional Services (CFIS) which administers the program.

"Sharing ideas about teaching and learning in a collegial setting is one of the most treasured contributions of the centre."

Currently, there are 18 faculty comprising the Teaching Support Group, offering confidential help to peers concerned about teaching styles, trends and techniques.

Each participant undergoes a 15-hour training course which includes practice sessions, role playing and an extensive review of literature on peer consultation and coaching.

The group also meets several times a year to discuss problems and strategies, and to offer encouragement and support to each other.

Cassidy, who oversees the program with associate Shauna Butterwick, listed a diversity of teaching concerns addressed by the group including: dealing with curriculum restructuring; teaching in a clinical setting; eliciting classroom participation from shy students; and instructing large classes.

She stressed that the type of support an individual receives is flexible, tailored to their needs, and constructive feedback, focusing on the individual's strengths, is given to encourage self-assessment.

"After determining, through the initial telephone contact, some specifics to help us pair the client with a group member, a number of options are available to the caller," Cassidy explained.

"Some may just need an opportunity to chat informally over a cup of coffee, and others may request in-class evaluation, assessment of course materials or co-ordination of student feedback."

In addition to fine-tuning the service to maximize the benefits clients receive, Cassidy said they are also told about other programs available through CFIS.

Although there is no typical profile of who uses the service—calls come from faculty without any teaching experience and from others who have spent 25 years in front of a classroom—they all have one thing in common, respect for the importance of teaching, Cassidy said.

Anyone interested in learning more about the group and other programs offered by CFIS is invited to visit the centre's web site at <http://www.cstudies.ubc.ca/facdev>

Child-care to be based on First Nations culture

by Stephen Forgacs

Staff writer

The First Nations House of Learning (FNHL) will hire a cultural co-ordinator to develop and implement programs for its child-care centre thanks to a \$40,000 grant from the Vancouver Foundation.

The grant is the second the centre has received from the foundation and will allow for the development of child-care programs based on First Nations cultural ways.

FNHL Director Jo-Ann Archibald said the implementation of cultural programs will make the Longhouse Child-Care Centre unique when compared to other child-care facilities.

The grant proposal to the Vancouver Foundation set out the need for a cultural co-ordinator: "UBC First Nations students have been concerned about the effects that relocating to Vancouver for their studies might have on their children who live away from the reinforcing atmosphere of home communities. Specifically, they want their children's heritage and cultural values reinforced."

New programs are likely to include an introduction to First Nations languages and traditions such as games, crafts, dance, singing and storytelling. Archibald said the co-ordinator's role will involve both the development and implementation of these programs, including bringing First Nations Elders and other representatives in for a variety of workshops aimed at children or parents.

Beyond the hiring of a cultural co-ordinator, activities aimed at strengthening the cultural components of the centre include the acquisition of aboriginal toys; the completion of landscaping including planting of "culturally relevant" berry bushes, plants and trees; research initiatives such as the development of a parenting program, elder involvement, and other graduate-level research projects. FNHL staff will also document

all developments at the centre in order to provide an information base to share with others who want to establish similar centres.

The grant meets the First Nations House of Learning's highest priority need for phase two of the

development of the child-care centre.

The first phase, also funded by the Vancouver Foundation and now complete, involved the construction of an outdoor playground and the hiring of child-care staff.

The centre, which has been in operation for a year, has the capacity to take 16 children in a mixed-age environment from six-months to five-years-old. Children of First Nations students and staff are given priority in admission to the centre.

The mandate of the First Nations House of Learning is to make the university's resources more accessible to First Nations students and to improve the university's ability to meet the post-secondary educational needs of First Nations.

"...to improve the university's ability to meet the post-secondary educational needs of First Nations."

Dofasco donation funds chair in steel processing

by Stephen Forgacs

Staff writer

Canadian steel producer Dofasco Inc. has donated \$750,000 to UBC's Faculty of Applied Science for the establishment of a \$1.5-million Dofasco Chair in Steel Processing.

"The Dofasco Chair at UBC focuses on bringing people together to generate knowledge on processes through research," said Indira Samarasekera, a professor in the Dept. of Metals and Materials Engineering, who will hold the chair position for the first five years. "The creation of the chair provides the university with a great opportunity to further research in ferrous metallurgy and to undertake new projects."

The Dofasco donation will be matched with money from the President's Fund, which includes money generated through the development of the Hampton Place housing complex at UBC.

As chair, Samarasekera will focus on processing and metallurgical design of advanced steel grades from continuous casting, in which liquid is converted to solid steel, to the rolling of hot sheets for use in such products as automobiles.

Ian O'Reilly, Dofasco's general manager of Research and Development, said the UBC chair, and another at McMaster University, have been created to support university research programs in jeopardy due to declining university funding.

"The Canadian university community has historically contained a wealth of expertise in the field of ferrous metal-

lurgy," O'Reilly said. "We see the creation of this chair as an investment that will ensure the continuation of leading-edge university research programs and will also help Dofasco to sustain its technical and operational excellence into the 21st century."

Samarasekera said the chair will also support the research efforts of a junior chair. The junior chair position will lead research aimed at developing new sheet metals. Several other faculty members will also be closely associated with the chair program, she said.

"I will be looking at areas where, if I don't have the expertise, I will bring other colleagues into the program," she said. "My role will include ensuring a dynamic relationship as opposed to just one person interacting with one company."

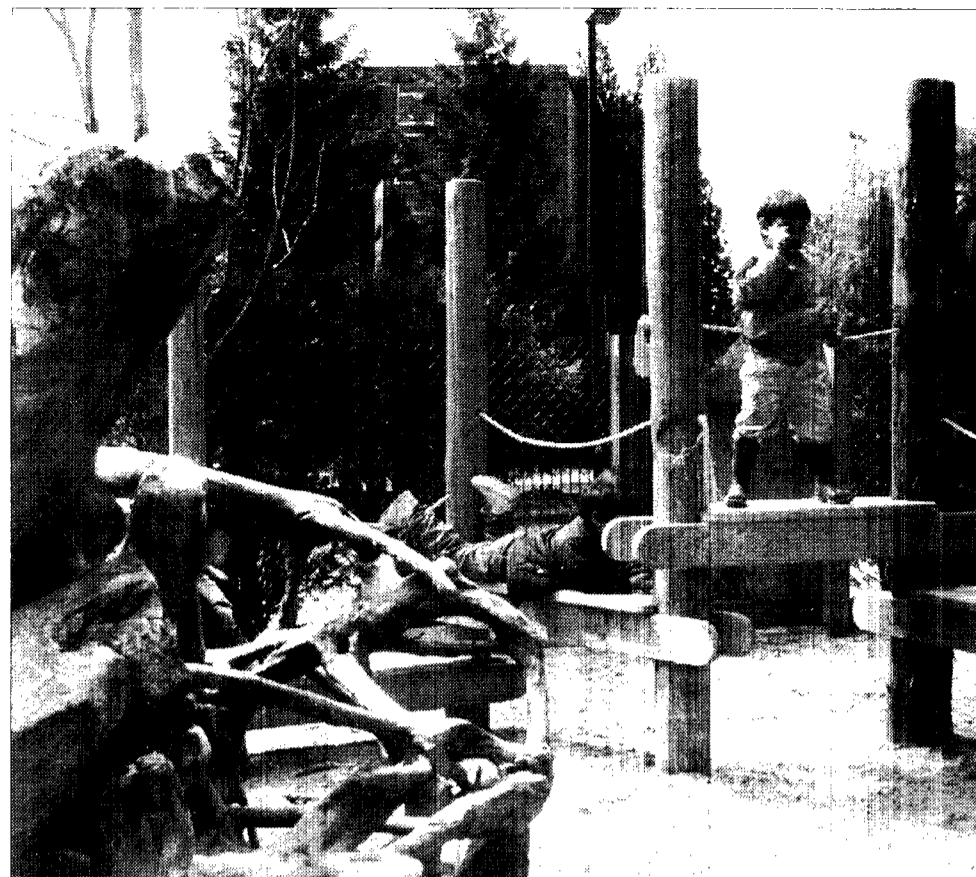
Samarasekera, a faculty member since 1980, has been collaborating on research with Dofasco for about two years and was instrumental in putting forward UBC's proposal for the chair.

"My job (in preparing the proposal) has been to design and develop a program that might fit with what Dofasco sees as in the interests of the company's future, and what we see as intellectually exciting and challenging for the chair program," she said.

Dofasco, one of Canada's largest steel producers, employs 7,000 people at a plant in Hamilton, Ont. The company produces a range of steel products for use in automotive, construction, container and steel distribution industries and other areas.



Samarasekera



Stephen Forgacs photo

Children at the First Nations House of Learning child-care centre clamber over the beach logs and new equipment in the recently completed playground. The centre provides children of First Nations students and staff with an environment that is supportive of their culture and heritage.

Program fills gap in social worker training

Social workers' limited training in intercultural and interracial issues has prompted the University of British Columbia to launch a program to give professionals a better grounding in these crucial areas.

"It's unethical to keep sending people out into the workplace knowing what we do about the social makeup of the province and knowing they are not properly equipped to deal with many of the situations they will face," says Carole Christensen, a professor in UBC's School of Social Work.

As director of UBC's Skills and Knowledge for Intercultural and Interracial Practice (SKIIP) program, Christensen hopes to fill an educational and training void which exists across Canada. Very few of the country's 27 schools of social work have mandatory courses on how to deal with sensitive matters of culture and race.

Christensen says the program was prompted, in part, by a national survey of 3,000 Canadian social workers published by UBC's Centre for Health Services and Policy Research in 1994. Half of those surveyed said they needed training in cross-cultural skills in order to remain relevant.

"When schools have no mandatory courses in these areas, students likely have the same prejudices when they graduate as they did when they enrolled," said Christensen, who earlier chaired a national study of curricula at schools of social work.

The SKIIP program, offered through UBC Continuing Studies, will be presented by academics and professionals working in the field. The program consists of five courses: Community Development: A Cross Cultural Perspective; Organizational Environment and Multiculturalism; Immigration, Multiculturalism and Social Work; and Cross-Cultural Practice. The fifth course is a practicum component which allows

participants to put what they have learned to use. The program format will include seminars, lectures and practice-based assignments. The Community Development course begins in late May and runs through June.

Christensen cites several examples of how cross-cultural training can help social workers to become more knowledgeable about immigrant, minority and First Nations populations.

Christensen says that in the health sector, social workers are often unaware of how culture affects attitudes toward sickness and health. Studies document that the criminal justice system does not treat all cultural and racial groups impartially, with some receiving harsher sentences than others for similar infractions. Family therapists, too, may inadvertently alienate immigrant parents by expecting them to conform to Canadian norms about acceptable behaviour for teenagers. Children

may even be removed from their homes when social workers lack understanding of a family system and family history that differs from their own.

"By addressing these and other issues, the SKIIP program should help social workers better serve our diverse society," said Christensen.

SKIIP is designed as a certificate program and efforts are underway to have the program recognized by the Board of Registration for Professional Social Workers. The program is funded by a grant from the federal government and the provincial Ministry of Skills, Training and Labour. Guest lecturers include: social work graduates Emery Barnes and Darlene Marzari of the provincial government; former MP Margaret Mitchell; Paul Winn, who holds degrees in law and social work; and Assoc. Prof. Richard Vedan from the School of Social Work.

Call 822-1433 for more information.



Christensen

Professor investigates tobacco advertising

by Stephen Forgacs

Staff writer

Prof. Richard Pollay is no stranger to attention when it comes to the war against the tobacco industry.

Pollay was the focus of a recent Washington, D.C. news conference as lead author of a study entitled "The Last Straw? Cigarette Advertising and Realized Market Share Among Youths and Adults, 1979-1993."

Published in last month's *Journal of Marketing*, the study concludes that 12- to 18-year-olds who already smoke are three times as likely as adults to be influenced by cigarette advertising in choosing brands—a finding that tobacco critics are now using to debunk the industry's claim that its ads are targeted solely at adults.

Pollay, a marketing professor in the Faculty of Commerce and Business Administration, was first recruited by the anti-smoking ranks in 1987. American lawyers fighting on behalf of a "health victim" asked him to undertake a study of cigarette advertising.

"(The lawyers) wanted someone who had expertise not just in cigarettes, but also in advertising history generally, and who had the ability to do studies using a technique called content analysis. I had both, so I fit their bill quite well," Pollay said.

Pollay's research and subsequent experience with tobacco industry lawyers convinced him it was a battle worth fighting.

"I was intrigued, one might even say stunned, by what I learned because it was clear that despite health problems associated with cigarette smoking, the advertising was doing everything it could to communicate the healthfulness of the product."

During the 1987 case, a grueling three-day cross examination by industry lawyers further piqued Pollay's curiosity.

"It was so aggressive that I think it was intended to make me feel really weak in the knees. But in fact it stiffened my spine, and I wondered what they had to hide from a marketing professor," Pollay recalled.

Following the cross examination, Pollay began to notice events that suggested

someone might be trying to intimidate him. His mail was stolen from his office mail box, his phone acted strangely, his neighbours were questioned about him, and someone went through his garbage.

"The lawyer I was working with said it was no coincidence. Because I was willing to testify against the industry, I was being investigated."

Pollay's growing interest in cigarette advertising and the demand for his expertise has kept him deeply involved in the study of the industry from a marketing perspective for close to a decade.

He has written numerous papers on the subject and testified in seven court cases. Now, although teaching and reading on other areas consume some of his time, work related to the tobacco industry commands much of his attention.

Pollay's first experience in court in 1987 marked the first time a court ruled against the tobacco industry. The ruling was later overturned on a technicality.

"None (of the court cases) have ever yielded damage settlements. There has never been a penny paid to a health victim by the tobacco industry," Pollay said.

Pollay regards the involvement of several U.S. states in law suits against the tobacco industry as a sign of pending change. The states, suing to recover medical expenses claimed to result from smoking, have the financial strength to take on the industry. Also, the courtroom dynamics are shifting because of the states' position as "innocent victims" paying the cost of others' decisions.

"It tends to put the tobacco industry on trial," said Pollay, adding that individual health victims face a greater challenge in proving that they are in fact victims as opposed to having brought their situation upon themselves.

"It's like a rape case," he said of cases in which health victims have taken on the industry. "As the plaintiff you have to walk on water before you're even going to get a fair hearing."

Pollay deposits money he receives for his involvement as an expert in court cases into a UBC endowment account to support re-



Former smoker and UBC marketing Prof. Richard Pollay has been on the front lines of the battle against tobacco companies for a decade. He recently released a study that shows the industry is targeting younger people with its advertising.

search activities. He estimates \$160,000 has gone into the account from payments for his expertise and royalties from a film he made for education purposes.

Ironically, Pollay said the tobacco industry, by compensating for making statements at depositions, is helping fund his research.

Pollay, who smoked for 15 years, now feels a moral obligation to stay involved in the battle over cigarette advertising.

"I know there are not a lot of people who have the kind of background I have, that is

with marketing knowledge and up to speed on what is going on in the tobacco industry. So I can't easily say no."

Ultimately, he would like to see the U.S. and Canada take action to drastically restrict cigarette advertising.

"We continue, generation after generation, to promote this product in ways that make it attractive to youth. And I think it's appalling because this is an addictive and deadly drug. It's the single most preventable cause of disease and we should be doing something about it."

Bureau speaks up and out

by Connie Bagshaw

Staff writer

Are we just stardust? Is your brain necessary? Why was Canada covered with ice 18,000 years ago? Call UBC's Speakers Bureau and find out.

Since the 1970s, faculty and management and professional staff have been lending their expertise to UBC's community outreach program on everything from aromatherapy to waste water.

Currently, about 200 members of the university community participate in the program to produce a roster of more than 750 presentations available to libraries, seniors' residences, community centres, schools, clubs and associations across the Lower Mainland.

"The Speakers Bureau assists in making the community aware of the excellence and academic diversity of UBC's faculty and staff," says Charles Slonecker, director of University Relations. "In addition, it continues to build a spirit of partnership between the university and the community which has always responded enthusiastically and appreciatively to this outreach initiative."

Paul LeBlond, a professor of Earth and Ocean Sciences, is one of the longest serving members of the Speakers Bureau. He joined soon after the program was launched by what was then called Continuing Education.

Despite driving through rain-drenched nights on several occasions to lecture about coastal B.C. sea monsters or ocean waves, LeBlond's "youthful enthusiasm" which, he quips, first drew him to the program, hasn't been dampened.

"I believe that we have a responsibility to teach a variety of people beyond the classroom," LeBlond says. "For me, the Speakers Bureau gives me an opportunity to talk about what I love to do, and to get to know people other than colleagues and students."

Human Resources Advisor Erna Hagge is a new recruit to the Speakers Bureau. Since last year, she has been available to speak about personal presentation, presenting yourself for an interview and recruitment at UBC.

Like LeBlond, Hagge has what she describes as a "passion" for her subject and wants to share it with her audiences whom she hopes will benefit from the information.

"To help people move forward in their self-confidence and assist them in an informal way is very rewarding," Hagge says. "Knowing that someone will walk away from my presentation with new knowledge that's helpful to them is why I participate in the Speakers Bureau."

Both LeBlond and Hagge say they would encourage people to join the Speakers Bureau which is currently looking for new participants. For more information, call 822-6167 or fax 822-9060.

Faculty, students tackle our ecological future

Eighty per cent of B.C. residents say they turn off lights when leaving a room, turn down the thermostat at night and recycle newspapers, according to a UBC survey.

These are a few of the observations found in *Being Green in B.C.*, a report based on a provincial survey of 1,652 residents. The report was one of several presented at a day-long public forum this month in Abbotsford dealing with the past, present and ecological future of the Fraser Basin.

UBC sociologist Neil Guppy, co-author of *Being Green in B.C.*, said environment ranked second behind unemployment as the most important problem facing British Columbians today.

Guppy's report was prepared for the \$2.4-million Fraser Basin Eco-Research Study. Entering its fourth year, the study tackles a myriad of sustainability challenges in the 500,000-hectare region stretching from Richmond to Hope. A total of 27 UBC faculty and 35 students from nine faculties have been involved in the ambitious project.

In 30-minute telephone interviews, survey participants were quizzed about their attitudes towards environmental issues. The survey's goal was threefold: to determine how concerned British Columbians are about the environment; how "green" their behaviour is; and to explore reasons for differences in their greenness.

"The poorest and least educated residents are just as likely as the richest and best educated to care about environmental problems," says Guppy, who adds

that women are significantly more concerned than men about environmental problems in local communities.

Among the report's other findings: 70 per cent of respondents said they recycle tin cans; 43 per cent compost fruit and vegetable waste; 47 per cent donate money to environmental causes; and 43 per cent have boycotted a product because of an environmental concern.

Other presentations by UBC faculty at the Abbotsford forum included: an historic economic overview of why the Fraser Valley developed as it did; current and intended use of land and resources by First Nations; conflicts around issues such as access to natural resources and the perceived effects of pollution; peoples' perceptions about the ecological health of different bodies of water in the Lower Mainland and what puts them at risk; and issues associated with regulatory compliance by businesses.

Forum presentations did not focus solely on environmental change in the valley. Prof. Bill Rees, director of UBC's School of Community and Regional Planning, reviewed his findings on the global impact of consumption decisions made by people in the basin and the implications for a sustainable world economy.

The forum also featured a demonstration of a computer game developed at UBC's Sustainable Development Research Institute. The game shows players the complex environmental ramifications resulting from their choices on matters such as land use, population growth and lifestyle in the valley.

Workshop fans interest in geological science

Legend has it that a young Nisga'a prince and his friends were responsible for the volcanic eruption 250 years ago that buried two native villages in the Nass Valley.

The bored boys caught two salmon, slit their backs, stuck burning sticks in one, sharp pieces of shale in the other and laughed as the fish floundered in the river.

Soon after this brutal act, the sky turned black, the ground rumbled and the air began to smell. Today the Nisga'a Memorial Lava Bed Provincial Park commemorates the site where roughly 2,000 villagers were buried by tons of lava which flowed from a nearby valley into the Nass River.

UBC geologist Mary Lou Bevier has capitalized on local legend to attract native students into her field of geological sciences.

"First Nations are moving towards managing their own natural resources but in many cases they don't have the expertise to do it," said Bevier, an authority on B.C. volcanoes. "The best way to get people interested in science is to make it relevant to them and local legends help do that."

The Geological Society of America recently asked Bevier to make a presentation on an educational program she helped

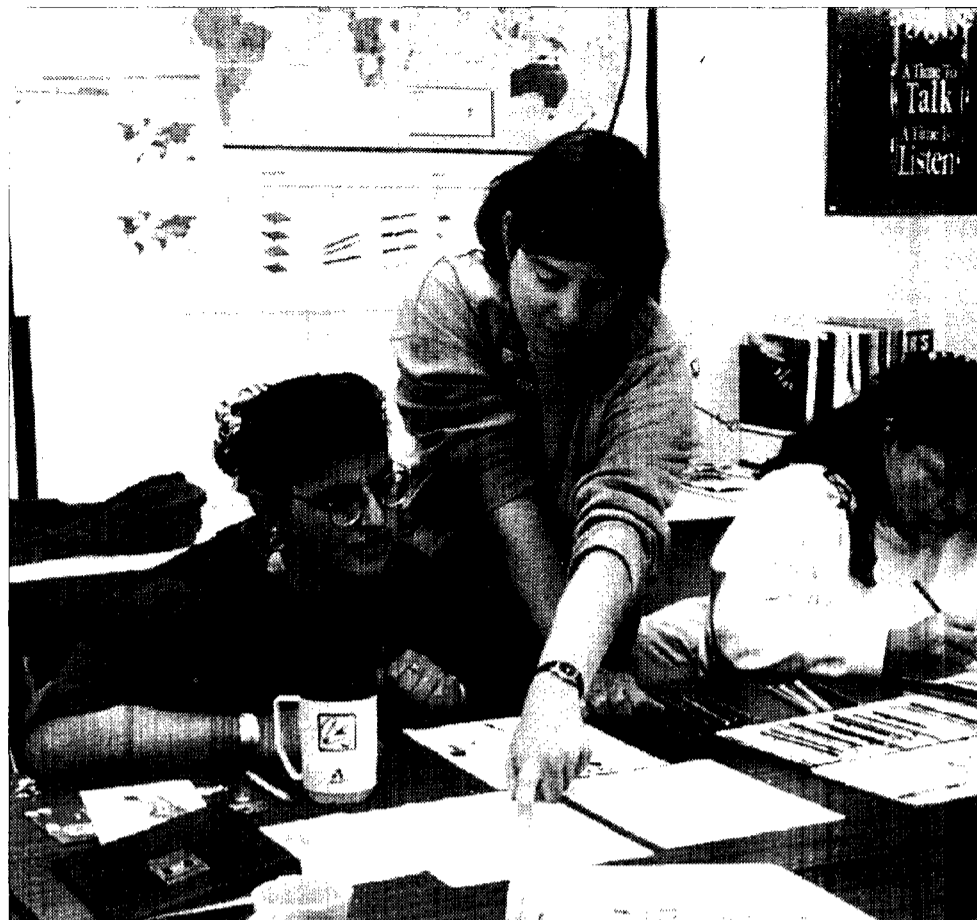
deliver last summer to 30 First Nations students.

Bevier and a geoscientist with the Geological Survey of Canada were asked by the North Coast Tribal Council Education Centre in Prince Rupert to run a workshop for adult students ranging in age from 19 to 45. The first day of the two-day workshop had Bevier discussing her academic background, career options in geology and exhibiting volcanic samples. She then showed slides of erupting volcanoes, explained how they are formed and what hazards are associated with various types.

On day two students were taken to a rock quarry and shown the proper method of gathering rock samples and examining embedded minerals with a hand lens. The day ended with a trek to the lava bed where the group discussed various legends as well as scientific aspects of volcanology.

After two days of geoscience training, Simon Fraser University science educator Alan McKinnon taught the class how to present the information they had learned back to people in their local villages.

"Prince Rupert is a regional centre which draws people from tiny villages that otherwise would have no access to any kind of higher education at all," said Bevier. "By reporting back to their home



To introduce students from communities in north coastal B.C. to geology, Mary Lou Bevier explains how legendary local volcanic eruptions occurred.

communities, these adults students act as role models and inspire local school-aged kids into perhaps pursuing a science career."

The project was sponsored by the

Scientists and Innovators in the Schools program centred at Science World. Bevier hopes to conduct similar workshops with other native communities in the province.

Forum

The Seniors Benefit: Equity for whom?

By Jon Kesselman

Jon Kesselman is professor of Economics and director of the Centre for Research on Economic and Social Policy at UBC. A version of the following appeared in the Globe and Mail, April 16, 1996.

The recent federal budget proposed a sweeping reform of tax-supported public pensions in a new Seniors Benefit. This reform was touted as a way to conserve public funds while improving equity. Yet, the proposed scheme leaves unanswered the question of "equity for whom?"

The Seniors Benefit raises three basic issues of fairness—between similar individuals, across the generations, and for persons at low versus high income levels regardless of age. Remarkably, a brief review of the new scheme shows it to be deficient in all these major dimensions of equity.

Individuals who were aged 60 or more as of New Year's Eve, 1995, will be insulated from any possible loss when the Seniors Benefit becomes effective in 2001. They will be given a choice between the new benefits and their existing benefit rights. Only those at higher incomes will find it attractive to stick with the existing benefits, so it is mainly the Old Age Security (OAS) benefits that are relevant in this comparison.

Let us take those individuals who celebrated their 60th birthdays on New Year's Day, 1996, just one day after the limit for insuring no loss under transition to the Seniors Benefit. Beginning in 2001, such persons with incomes of \$52,000 will get no OAS, and their Seniors Benefit will be zero at that income level. Yet persons born one day before them will get to keep their full OAS benefits, which are now about \$4,800 per year and are fully indexed for inflation.

To purchase an equivalent indexed annuity at age 65 would cost about \$60,000. Hence, the sharp distinction between those who are insulated from the transition and those who are not is like a gift of \$60,000 to the members of one group or a penalty of \$60,000 to members of the other. This can hardly be an equitable distinction, given that the two are separated by only one day in age, and both have paid similar taxes over their working lives.

Turning now to the intergenerational aspect, the Seniors Benefit again turns principles of equity on their head. All persons who are now seniors, and those who were at least 60 at the end of 1995, will be insulated from any possible losses in moving to the new scheme. All the losses from the transition to the new scheme will be borne by those who are now middle-aged, young adults, children, and generations to follow.

Current retirees already are enjoying the largest windfalls from the start-up of the Quebec and Canada Pension Plans. Their benefits from those plans far exceed their lifetime contributions. The generations to follow will reap a much poorer return on their Quebec and Canada Pension Plan premium payments because of the imbalances in the way those schemes were structured for their first generation of beneficiaries.

It would be more equitable to ask the generation that is receiving the large CPP windfalls to sacrifice something for future generations from their non-contributory public pensions. Instead, the younger generations are being asked to sacrifice their future pensions to secure the financial position of those now retired at comfortable and higher incomes. This may be a politically astute move by the government, but that does not make it fair.

The government argues that its provisions for transition to the Seniors Benefit are fair because they give

individuals at least five years' notice before the change. But can we reasonably expect many individuals who are now aged 59, or even 50, to save an additional \$60,000 per person (\$120,000 per couple) prior to retirement to offset their loss of the full OAS?

Reducing public outlays on pensions will, of course, impose losses on some groups in some generations. The question is how to spread this burden fairly across the various groups and generations. If savings are not achieved in the public pensions part of the government budget, groups of the non-aged who have already suffered in recent years will suffer even more.

Do we really place the well-being of middle- and upper-income retirees above the needs of those persons at the lowest incomes on account of disabilities, joblessness, and single parenthood? The answer, apparently, is yes, if we are to judge by the federal and provincial budgets of recent years.

The current OAS with its tax clawback makes net payments to single retirees with incomes up to \$85,000 and to retired couples with total incomes up to \$170,000 (and even higher if their incomes are not equal). The Seniors Benefit will reduce the maximum income levels at which benefits will be paid to \$52,000 for singles and \$78,000 for couples. Yet, we might ask why public payments should go to persons at even those relatively high income levels, when programs for society's most disadvantaged are being curtailed on almost a daily basis.

We might consider reforming the tax-financed public pensions so that their benefits cease at more modest levels. For example, why not fully phase out the Seniors Benefit at incomes of about \$35,000 for singles and \$50,000 for couples? These figures are more than double the threshold levels for poverty, and most seniors

enjoy lower costs than the non-aged with respect to home mortgages, raising children, and food and transport needs.

It would be easy to overcome the key deficiencies of the proposed Seniors Benefits, which are its delayed implementation (five years away) and its confusion of grandparenting provisions with a proper allowance for transition. A reconfigured Seniors Benefit would offer a transitional period of 10 or 15 years over which the income ceiling for benefits is gradually reduced and the targeting of benefits thereby gradually increased.

Unlike the budget's proposals, no generation would be spared the impact of reduced benefits at higher income levels. There would also be no need to maintain both the current array of pension and tax provisions and a separate Seniors Benefit scheme for decades into the future.

With these changes, the Seniors Benefit could save larger amounts and truly deliver on the promise of improved equity. These changes do not undermine the genuine gains offered by the government's proposal—full indexation of benefits and thresholds, payments to couples based on their combined incomes, and simple delivery of benefits based on tax filing.

The proposed variant of the Seniors Benefit could be fully operational by next year. There is no need to wait until 2001 to begin to achieve the budgetary savings or the improved equity of reform. The savings could be redirected through enhanced federal transfers to the provinces to allow them to maintain their safety net for society's most disadvantaged—and for the health, home-care, and institutional services that seniors themselves use so heavily.

Calendar

May 5 through June 15

Monday, May 6

Biochemistry and Molecular Biology Seminar
Regulation Of Gene Expression In Early B. Lymphocytes. Dr. Jim Hagman, National Jewish Hospital, Denver. IRC#4. 3:45pm. Refreshments at 3:30pm. Call 822-9871.

Tuesday, May 7

Pharmaceutical Sciences Seminar
Analysis Of The Conjugates Of Reactive Metabolites Of Valproic Acid. Sashi Gopaul, grad. student. IRC#3. 12:30-1:30pm. Call 822-4645.

Centre for Applied Ethics Colloquium
Utility Theory And Ethics. Philippe Mongin, Centre National de la Recherche Scientifique, France. Continues May 14. Angus 413. 2-4pm. Call 822-5139.

Wednesday, May 8

Respiratory Research Seminar Series
Viruses And Asthma: Where Are We Now? Dr. R. Hegele, Pathology, Vancouver Hospital/HSC. 27751 Heather St., 3rd floor conference room, 5-6pm. Call 875-5653.

Lunch-time Demonstration
David Tarrant Does Containers. David Tarrant, Educational Coordinator, UBC Botanical Garden. UBC Bookstore, 12:30-1:30pm. Call 822-2665.

Orthopedics Grand Rounds
The Facet: Current Concepts. Dr. Bethan Chancey, Dr. Rob Vande Guchte. Vancouver Hospital/HSC Eye Care Centre auditorium, 7am. Call 875-4111 local 66276.

Thursday, May 9

Centre for Applied Ethics Colloquium
Health Care And Risk In The New National Health Service: Issues Around Commissioning Services. Chris Bennett, U of Warwick. Angus 415. 2-4pm. Call 822-5139.

Friday, May 10

Pediatrics Grand Rounds
Drug Eruptions In Children. Dr. Julie Prendiville, Pediatric Dermatology. GF Strong auditorium, 9am. Call 875-2307.

Saturday, May 11

Slide Show/Lecture
Nature In Focus. Graham Osborne, photographer. UBC Bookstore, 1:30-2:30pm. Call 822-0587

Sunday, May 12

Sixth Annual Perennial Plant Sale
Thousands Of Unusual Plants Plus Talks By Six UBC Garden Personalities. UBC Botanical Garden parking lot, 10am-4pm. Garden admission free, donations appreciated. Refreshments available. Call 822-9666.

Monday, May 13

Biochemistry and Molecular Biology Seminar
Protein Ubiquitination: What It Does, How It Works And Why Anyone Should Care. Michael Ellison, Biochemistry, U of Alberta. IRC#4. 3:45pm. Refreshments at 3:30pm. Call 822-9871.

Wednesday, May 15

Senate
The Ninth Regular Meeting Of The Senate. UBC's Academic Parliament. Curtis 102, 1822 East Mall, 8pm. Call 822-2951.

Orthopaedics Grand Rounds
Intrinsic Hand Deformity: Causes And Management. Dr. P.T. Gropper, Dr. B. Perey. Vancouver Hospital/HSC Eye Care Centre auditorium, 7am. Call 875-4111 local 66276.

Friday, May 17

Pediatrics Grand Rounds
Pulmonary Surfactant. Dr. Alfonso Solimano, Paediatrics Newborn Services, Children's Hospital. GF Strong auditorium, 9am. Call 875-2307.

Wednesday, May 22

Orthopedics Grand Rounds
TBA. Vancouver Hospital/HSC Eye Care Centre auditorium, 7am. Call 875-4111 local 66276.

Thursday, May 23

UBC Board of Governors Meeting
Open Session. Board and Senate room, Old Administration Building, 6328 Memorial Road, 9am.

Lecture
Clicking With Faith Popcorn. Faith Popcorn, SUB auditorium, 7:30pm. Tickets \$5 at Bookstore, or charge by phone 822-4749.

International Exchange Programs
Great Expectations: Building A Vision For Internationalization In Post-Secondary Institutions. Mark Webber, York U. Curtis, 11am-12:30pm. Call 822-5546/822-3753.

Friday, May 24

International Exchange Programs
Consorting With Strangers: International Partnerships And Domestic Alliances. Mark Webber, York U. Curtis, 1:30-3pm. Call 822-5546/822-3753.

Pediatrics Grand Rounds
Changing Concepts In Autism: What Is In And What Is Out? Dr. Helena Ho, Behaviour Program, and Dr. Linda Eaves, Psychology, Sunny Hill Health Centre. GF Strong auditorium, 9am. Call 875-2307.

Sunday, May 26

10th Pacific Institute on Addiction Studies
Core Prevention Training: Working With Violent Youth: Multiple Diagnosis: Managing Changes And Transition. UBC. Continues through May 29. Call 874-3466.

Monday, May 27

Visiting Scientist Lecture
Engineering Polyketide Drugs. Jim Staunton, Chemistry, Cambridge U. Chemistry D-225, centre block, 11am. Call 822-3266.

Tuesday, May 28

Cooperative University-Provincial Psychiatric Liaison Workshop
Dual Disorders: Combined Substance Abuse And Mental Disorders. Continues May 29. Prince George Civic Centre, 8am-6:30pm. \$200. Call 822-7971.

Friday, May 31

Pediatrics Grand Rounds
Common Mechanisms In Defects Of Eyes And Ears. Dr. Christopher Lyons, Ophthalmology, Children's Hospital. GF Strong auditorium, 9am. Call 875-2307.

Thursday, June 6

Institute of Asian Research/Canadian Chinese Painters Art Exhibition
Lotus And Water Lily Paintings. Continues to June 10. Asian Centre auditorium, 10am-6pm. Call 822-2629.

Notices

Badminton Drop-In
Faculty/Staff/Grad Students are welcome at the Student Recreation Centre, Mondays, 6:30-8pm, and Wednesdays, 6:45-8:15pm. Bring your library card. Check for cancellations: ratkay@unix.ubc.ca or call 822-6000.

Volleyball
Faculty, Staff and Grad Student Volleyball Group. Every Monday and Wednesday, Osborne Centre, Gym A, 12:30-1:30pm. No fees. Drop-ins and regular attendees welcome for friendly competitive games. Call 822-4479 or e-mail: kdcs@unix.ubc.ca.

Morris and Helen Belkin Art Gallery
The Innocence Of Trees: Agnes Martin and Emily Carr. Guest curated by David Bellman. March 14 - May 25. Tuesday - Friday: 10am-5pm; Saturday, 12-5pm. 1825 Main Mall. Call 822-2759.

Faculty Development
Would you like to talk with an experienced faculty member, one on one, about your teaching concerns? Call the Centre for Faculty Development and Instructional Services at 822-0828 and ask for the Teaching Support Group.

Fitness Appraisal
The John M. Buchanan Exercise Science Laboratory is administering a comprehensive physiological assessment program available to students, staff, and the general public. A complete fitness assessment with an interpretation of the results takes approximately one hour and encompasses detailed training prescription. A fee of \$50 for students and \$60 for all others is charged. For additional information or an appointment, please call 822-4356.

Parents in Long-Term Care Study
Daughters with a parent in a care facility are invited to participate. Study focuses on the challenges of visiting/providing care and its effect on well-being. Involves interviews/responses to questionnaires. Call Allison, Counselling Psychology at 946-7803.

Clinical Trial in Dermatology
A study comparing two oral medications. Famciclovir and Valacyclovir in the treatment of first episode of Herpes Zoster (shingles). Age 50 and over. Division of Dermatology, 835 West 10th Avenue, 3rd floor. Reimbursement for expenses. Call 875-5296.

Surplus Equipment Recycling Facility
Weekly sales of furniture, computers, scientific etc. held every

Friday, June 7

Pediatrics Grand Rounds
Thalassemia - Current Management Issues And Future Trends. Dr. Ron Anderson, Dr. John Wu, Dr. Yigal Kaikov, Haematology/Oncology. GF Strong auditorium, 9am. Call 875-2307.

Monday, June 10

Anatomy Course
Comprehensive Review And Upgrading Of Knowledge Of The Human Back And Limbs. Continues through June 21. Friedman 313, 8:30am-4pm. Registration fee before May 10.

\$800; \$900 after to May 31. E-mail: dmford@unixg.ubc.ca. Call 822-2578.

Wednesday, June 12

Surgery Grand Rounds
Rationale For New Radiation Treatment Strategies. Dr. Thomas Keane, Radiation Oncology. GF Strong auditorium, 7am. Call 875-4136.

No calendar next issue

Next calendar deadline: noon, June 4

Wednesday, noon-5pm. SERF, Task Force Building, 2352 Health Sciences Mall. Call 822-2582 for information.

Garden Hours
Nitobe Memorial Garden, Botanical Garden and the Shop-in-the-Garden are open 10am-6pm daily (including weekends) until Oct. 13. Call 822-9666 (gardens), 822-4529 (shop).

Guided Tours of Botanical Garden
By Friends of the Garden. Every Wednesday and Saturday, 1pm, until Oct. 13. Free with admission. Call 822-9666.

English Language Institute
Homestay. English-speaking families are needed to host international students participating in ELI programs for periods of two to six weeks. Remuneration is \$22/night. Call 822-1537.

Clinical Research Support Group
The Clinical Research Support Group which operates under the auspices of the Dept. of Health Care and Epidemiology provides methodological, biostatistical, computational and analytical support for health researchers. For an appointment please call Laurel Slaney at 822-4530.

Explore Your Stress Coping Skills
Psychologists in the Counselling Psychology Department need clerical workers to participate in a study looking at work-related stress, over two months. If interested contact Marlene at 822-9199 (Stress Lab).

Vancouver Hospital Studies
Volunteers are needed as control group for research study. Study in-

volves two test sessions. Each test session will involve two test days and will be one week apart - total time 16 hours. Volunteers should be between the ages of 18-65 and will be paid \$100 for the completion of both test sessions. Call Arvinder Grewal, Monday-Friday, 10am-2pm, 822-7321.

Parents with Babies
Have you ever wondered how babies learn to talk? ... help us find out! We are looking for parents with babies between 1 and 14 months of age to participate in language development studies. If you are interested in bringing your baby for a one hour visit, please call Dr. Janet Werker's Infant Studies Centre, Department of Psychology, UBC, 822-6408 (ask for Nancy).

Department of Physics and Astronomy Physics Summer Camp for Grades 4-7
Registration is under way for Physics Summer Camps for students in grades 4-7. The Physics Outreach Program in the Department of Physics and Astronomy is holding four one week sessions beginning July 8. For camp and fee information call 822-3853 or email: outreach@physics.ubc.ca.

Bilingual Language and International Leadership Summer School for Grades 8-12
Japanese and English. July 21-August 10, 1996. BC students join high school teens from Japan and learn Japanese, international leadership and cultural similarities and differences. Cost \$975 (may be offset by hosting a Japanese student). Enquiries 822-1545 or BLISS@cce.ubc.ca

UBC REPORTS

CALENDAR POLICY AND DEADLINES

The UBC Reports Calendar lists university-related or university-sponsored events on campus and off campus within the Lower Mainland.

Calendar items must be submitted on forms available from the UBC Public Affairs Office, 310-6251 Cecil Green Park Road, Vancouver B.C., V6T 1Z1. Phone: 822-3131. Fax: 822-2684. Please limit to 35 words. Submissions for the Calendar's Notices section may be limited due to space.

Deadline for the June 13 issue of UBC Reports — which covers the period June 16 to July 13 — is noon, June 4.



THE UNIVERSITY OF BRITISH COLUMBIA

THE ECONOMIC BENEFITS OF POST-SECONDARY TRAINING AND EDUCATION IN B.C.: MARCH 1996



THE UNIVERSITY OF BRITISH COLUMBIA

May 2, 1996

To: Members of the University community**Subject:** The Economic Benefits of Post-Secondary Training and Education in B.C.: an outcomes assessment

Please find attached a copy of a report by Prof. Robert Allen, Economics Dept. I asked him to prepare this in response to the B.C. Labour Force Development Board's Report *Training for What?*

M. Patricia Marchak
Dean, Faculty of Arts

Recently the British Columbia Labour Force Development Board released its first study called *Training for What?*. This report recommended a large expansion in post-secondary technical and vocational training programs in the province. The Board also concluded that university "applied" programs like Engineering should be expanded modestly, while "academic" university programs like the Arts should be contracted.

"While there is no gap in the capacity of the province's universities and university colleges to produce the numbers of university graduates that will be required, there appears to be a relative over-supply of graduates in academic programs and an under-supply of those in applied." (TFW, p. 43.)

These conclusions are based almost entirely on the Canadian Occupational Projection System—the COPS model. Very little attention in *Training for What?* is given to actual labour market outcomes in British Columbia. The Board takes it almost as a matter of faith that technical trainees get jobs at high wages that use the skills taught in their programs, while Arts graduates, for example, face high unemployment and find only low wage work in jobs that do not use their university training. In fact, however, these impressions of labour market outcomes are grossly inaccurate caricatures of the truth.

This study critically assesses the recommendations of the Labour Force Development Board and finds them seriously off the mark. Part I reviews the COPS forecasting model, which is the analytical core of *Training for What?*, and shows that it is an inadequate base for educational planning. Instead of using an unreliable forecasting model to decide which programs to expand and which to contract, Part II contends that B.C. would be better advised to study the actual experiences of graduates. Those programs whose graduates find jobs and earn good wages should expand while other programs should remain as they are or contract. The rest of the paper uses data from Statistics Canada surveys to measure the labour market success of graduates of post-secondary programs in B.C.

Part III explores who gets jobs. *Training for What?* claims "that university graduates, particularly those in academic disciplines, are having increasing difficulty finding work." (TFW, p. 25.) An examination of the data, however, shows that unemployment rates are higher for graduates of technical and vocational programs than for almost all university programs, including most Arts programs. The view of the Labour Force Development Board is far off the mark.

Part IV examines who pursues further education after graduation. The Labour Force Development Board is concerned that Arts and Science graduates cannot find jobs, so they are recycling through the system. It is shown that many university graduates, including most Arts graduates, enter other programs after getting their BA degrees. Most enter master's programs or professional programs for which their BAs are prerequisites. This is not recycling.

What is surprising is that many graduates of technical and vocational training are recycling by entering other programs rather than working—a quarter of the graduates of short-term technical training programs and one-third of the graduates of community college technical/vocational programs (not university transfer programs) had completed or enrolled in another training or educational program within two years of completing their studies. This finding is quite unexpected in view of the Labour Force Development Board's belief that one learns a skill and then gets a job. When a technical graduate enters a university program instead of working—that is recycling. It is a far bigger phenomenon among technical and vocational graduates than it is for university graduates.

The most striking fact about educational outcomes in *Training for What?* is the observation that 14% of the students at BCIT have university degrees. The Board interprets this to mean that too many university graduates are being produced. In fact, the Statistics Canada data show that cross-enrolments go both ways. While 4.9% of the students in technical/vocational programs had university degrees, 7.8% of students in universities had technical/vocational diplomas. Many students take more than one program because they are searching for what is right for them. The fact that university graduates enrol at BCIT is no more reason to shrink UBC than is the converse a reason to shrink BCIT.

Part V examines what skills students learn. The *Survey of 1990 Graduates* shows, as expected, that technical and vocational students and undergraduates in applied university programs are more likely to learn skills related to a particular job than are Arts and Science students. However, the *Survey* also confirms that Arts programs are more effective in teaching generally broader "employability" skills like writing and speaking than are other programs.

Part VI examines whether graduates use the skills they learned in school on the

job. In fact, few from any program do. This is not an indictment of "academic" university programs that never claimed to teach skills tailored to particular jobs, but it is a serious challenge to technical and vocational programs whose sole rationale is providing employment-related training. More generally, this finding calls into question the notion that training people in specific skills is better preparation for the world of work than training them in general skills.

Part VII examines how much money people make. The data used are from the Public Use Sample Tape of the 1991 *Census of Canada*. The sample of B.C. residents is studied. These data allow the comparison of the lifetime earnings profiles of people with different degrees. It is shown that short-term technical training programs have some pay-off for men but none for women, contrary to the view of the Labour Force Development Board. However, two-year community college programs have a pay-off for men and a smaller one for women. By this measure, there is a case for the expansion of technical and vocational programs, but the case is more limited than the Labour Force Development Board suggested.

Next the earnings of university graduates are examined. The situation is somewhat different for men and for women. Women with terminal bachelors degrees in almost every field earn more than women with community college technical/vocational training at every age. This includes humanities graduates, although the premium is not as great for them as for other university fields. Men with university degrees often earn less than men with technical certificates in their 20s but generally surpass them by a large margin at older ages. This career path is characteristic of the fields in which most men enroll—social sciences, commerce, engineering, and natural sciences. Men with degrees in the humanities and fine arts often earn somewhat less than men with community college credentials. Based on earnings there is a case for expanding most university programs.

Part VIII examines the economic situation of graduates in fine arts and the humanities. Most graduates in these fields are women, and they generally earn as much or more than women who graduated from community colleges but less than women with other kinds of bachelor degrees. In interpreting these figures, it should be borne in mind that they apply to the minority of graduates in these fields who did not undertake postgraduate studies and thereby earn higher returns. Furthermore, many people who entered these programs were not primarily motivated to earn high incomes but had other educational objectives. Indeed, the *Survey of 1990 Graduates* shows that the humanities students who aimed for a high income got one, while the ones less motivated by financial reward generally earned the lower incomes.

Part IX summarizes the findings of the paper. The returns to highly focused technical training are small or, in the case of women, non-existent. Two-year community college technical/vocational programs are more successful in generating higher incomes, so there is a case for their expansion. Most university graduates, however, have better employment prospects and earn higher incomes than college graduates, so there is an even stronger case for expanding universities.

Part I: How Good Is the COPS Forecasting Model?

Projections with the COPS (Canadian Occupational Projection System) forecasting model are the analytical core of *Training for What?*. These forecasts indicate that employment for people with technical certificates or community college technical/vocational credentials will grow enormously. The employment of high school drop-outs, high school graduates, and university graduates will change only marginally.

The COPS forecasts can be understood by imagining they take place in the following sequence of steps. First, census data are used to compute how many people with each educational credential are employed in each industry per dollar of output of that industry. These ratios are called "input-output coefficients." Some industries like business services, health, and education used university graduates intensively, while others like retail trade, wholesale trade, personal services, and food, beverage, and accommodation hardly employed a single graduate. These past employment patterns are built into the input-output coefficients. Second, the growth of output of each industry is projected into the future. Third, the input-output coefficients are used to calculate the number of people with each educational qualification needed to produce the forecast output levels. These forecasts show large increases in the employment of high school drop-outs and high school graduates since they comprise a large share of the workforce, especially in the industries that the COPS forecasts presume will grow rapidly. Fourth, the input-output coefficients derived from censuses are altered to preclude this outcome. The coefficients are changed to eliminate the employment growth for high school drop-outs and high school graduates by raising the qualifications for jobs in shops, restaurants, bars, etc. to technical training certificates or community college technical/vocational diplomas. This upgrading of jobs is essentially speculative. Evidently, if it were postulated that university graduates would become restaurant entrepreneurs, the employment of university graduates would have risen significantly. As it is, of course, the COPS model predicts no growth in the employment of university graduates since hardly any have been employed in the industries that are projected to grow the most.

How reliable are the COPS forecasts? Reliability can be gauged by seeing how well the model simulates past history. It does a rather bad job. Consequently, there is no reason to believe it will do a good job in forecasting the future. Two deficiencies of the COPS model explain why its forecasts cannot be relied upon for educational planning. First, as is evident from the description of the model, the skill upgrading is essentially arbitrary. One could easily imagine other scenarios in which the model would simulate a large growth in the employment of university graduates or, indeed, no employment growth for any post-secondary graduates.

Second, the great temptation with the COPS model is to interpret the employment projections as forecasts for the demand for different types of labour. These demand projections can then be compared to the capacity of the educational system to produce the requisite number of graduates and "skill gaps" (demand less supply) can then be identified. The Labour Force Development Board succumbs to this temptation, and *Training for What?* goes on at length about the "gaps."



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This interpretation would make sense only if technology dictates the skill distribution of the workforce. There are industries where one can imagine a close relationship between output and the employment of people with various skills. For instance, a school teacher has a class of about twenty-five students, so increasing the number of students by 10% requires 10% more teachers. Installing the plumbing in a house of specified characteristics requires a specific number of hours of plumbers' labour. There is also a close relationship between the number of doctors and nurses, on the one hand, and the number of patients treated on the other. Examples of this sort could be multiplied, but a little reflection indicates that the ratios are not technologically determined. Machinery and materials can substitute for skills, and skills can substitute for each other. Video and computers allow teachers to instruct more students. Paraprofessionals can replace teachers in many activities. The substitution of plastic for metal pipe cuts the hours of plumbers labour. Similarly, in medicine, paraprofessionals can do the work of doctors, and modern technology allows the substitution of medicines and equipment for people.

Even in examples like the building trades, education, and health where the employment of craftsmen and professionals might be thought to be technologically determined, rigidity is far from complete. In other industries, like restaurants or shops, there is simply no reason to imagine any necessary relationship between skill requirements and output. In these industries, flexibility is the name of the game.

In most parts of the economy, the skill distribution of the workforce is at the discretion of management. Therefore, employment patterns are determined by the supply of skills as well as the demand. In the past, for instance, if there had been more university graduates in Canada, the increment would not have been unemployed. Instead, their employment would have been greater, and employment patterns would have been different. The COPS forecasts would have projected a greater employment of university graduates. A major reason the COPS forecasts are in error is because the labour market is flexible, while the model is rigid.

Part II: Alternative Approaches to Planning Post-Secondary Training and Education

The inability of the COPS model to predict the evolution of employment in detail means that other approaches must be used to plan post-secondary education. I rely on two. First, I investigate the actual labour force experience of graduates. Unlike the COPS model, which speculates in an unreliable manner about the future, I see what has happened to graduates in the recent past. *Training for What?* contains many offhand remarks about this, but it does not investigate labour market outcomes systematically. A careful examination of the facts shows that the recent experience of university graduates is much more successful than the view propounded in *Training for What?*, while the experience of technical/vocational trainees is far less successful.

Second, many economic problems can be analyzed in terms of prices as well as quantities. The COPS model focuses on quantities (number of jobs, number of graduates). Instead I analyze prices (i.e. the wages of various jobs). *Training for What?* contains not a word on this important subject.

There are two reasons why wages matter. In the first place, they provide a gauge of the contribution that education can make to economic growth. The key idea is that the wage measures the productivity of the employee, i.e. the additional net output produced by that person. A competitive firm expands employment so long as additional workers add more to net output than they cost in wages. Expansion ceases when additional net output eventually falls to equal the wage. Since more educated people earn more money than less educated people, the implication of the theory is that more educated people are more productive (in the view of employers) than less educated people. Furthermore, educating people causes economic growth since the wage premium of the educated person equals the additional GDP attributable to that person's education. This theory is, of course, an abstraction that ignores many features of labour markets, but it provides a link between education and economic growth.

In the second place, wages matter because they characterize the different futures for which we can prepare for our children. Since B.C. is only a small province, it could probably rely on migration from other provinces or countries to supply its needs for educated workers. In that case, however, the high wage jobs would all be held by people from other places, and children growing up in British Columbia would be condemned to low wage work unless they (or more likely their parents) paid to educate them elsewhere. It is in order to provide the children growing up in the province with better chances in life—particularly higher wage jobs—that B.C. must operate a large post-secondary education system. And to decide which programs are the best bets for our children, we must examine the wages earned by people with different educational credentials.

The remainder of this paper implements the approaches just discussed by measuring and analyzing labour market outcomes like unemployment rates and wages. These indicators all show that *Training for What?* puts too much emphasis on technical/vocational training and not enough on university education, including "academic" programs in the humanities and social sciences.

Part III: Who Gets the Jobs?

The recommendations of the Labour Force Development Board are predicated on an optimistic view of training in specific skills. Implicitly the report assumes that people who are trained in specialized skills get jobs using those skills upon finishing their program. They stay with those jobs, earn high incomes, and thereby contribute to the growth of the provincial economy. In contrast, the Board assumes that people with university educations, especially in the "academic" areas like the fine arts, humanities, and social sciences, cannot find work since they lack skills. Therefore, they remain unemployed, work for low wages in jobs not requiring degrees, or seek technical training. For these reasons, the Board recommends an expansion of training and a reduction in "academic" university education.

A first test of this view is to see whether technically/vocationally trained students are really more successful in getting jobs than university graduates, particularly Arts graduates. To examine this question, I use data from Statistics Canada's

Survey of 1990 Graduates. This was a survey conducted in June, 1992, of people who had graduated in 1990. I use the public microdata file sample of 12,331 respondents from western Canada. The survey asked detailed questions on degrees obtained, field of study, employment experiences, and further schooling undertaken since graduation. The respondents included people who had completed skilled trades training programs of at least three months duration, community college technical and vocational programs, and university undergraduate and graduate programs. It is important to note that none of the community college respondents were in university transfer programs. Field of study was also indicated, so one can compare the unemployment situation of people with bachelor degrees in the humanities to that of skilled trade trainees, for example.

Table 1 shows the unemployment rates of people with various credentials in 1992, two years after graduating. (The table excludes people who were enrolled in another educational program.) In contradiction to *Training for What?*, the graduates of employment-related technical programs did the worst with an unemployment rate of 14.6%. Graduates of two year technical/vocational programs did somewhat better, for their unemployment rate was 8.6%. However, this performance was surpassed by graduates of almost every undergraduate university program. Unemployment rates in applied university programs ranged from 2.6 to 6.9%. In academic programs, fine and performing arts graduates did have the highest unemployment rate at 17.0%—not much more than that of technical trainees. Graduates in mathematics and science did better than technical/vocational graduates but not quite as well as graduates of community college technical programs. All other "academic" university graduates—including, in particular, humanities graduates (at 5.8%)—did better than technically trained students. The stereotype of the unemployed Arts graduate and the employed technician is a fantasy unsupported by the facts.

Table 1: Unemployment rates of graduates without further schooling two years after completing

Trades/technical	14.6%
Community college	8.6%
"Applied" university	
Education	4.8
Commerce	5.9
Engineering	6.9
Nursing & other health	2.6
"Academic" university—Arts	
Fine & Applied Arts	17.0
Humanities	5.8
Social Sciences	8.4
"Academic" university—Sciences	
Agriculture & Biology	7.1
Math & Physical Sciences	10.8
<i>Note:</i> General and unclassified bachelor's degrees are excluded.	
<i>Source:</i> Calculated from Statistics Canada, <i>Survey of 1990 Graduates</i> , 1992, public microdata file.	

Part IV: Who Seeks Further School?

An important fact of student life is that many students continue their studies after completing their first post-secondary program. This has implications both for measuring the income gains due to education and for judging the costs. The Labour Force Development Board is concerned that "substantial numbers of students"—particularly university graduates in "academic" programs—are "re-cycling through the system" (*TFW*, p. 24.) The *Survey of 1990 Graduates* allows this behaviour to be monitored for the first two years following graduation. Table 2 summarizes the results.

Table 2: Percentage of students who completed or entered at least one other training/educational program in the two years following completion

Trades/technical	26.4%
Community college	32.7
"Applied" university	
Education	27.9
Commerce	40.5
Engineering	34.2
Nursing & other health	31.4
"Academic" university—Arts	
Fine & Applied Arts	50.0
Humanities	57.7
Social Sciences	51.9
"Academic" university—Sciences	
Agriculture & Biology	34.2
Math & Physical Sciences	41.0
<i>Note:</i> General and unclassified bachelor's degrees are excluded.	
<i>Source:</i> Calculated from Statistics Canada, <i>Survey of 1990 graduates</i> , 1992, public microdata file.	

The table shows that university graduates had very high probabilities of entering another program. Over half of Arts graduates took further education. The proportion is closer to 60% for students in their twenties. This is not surprising since the BA has traditionally been regarded as a stepping stone to professional work. In other university faculties, including "applied" programs, postgraduate study was very common.

What is really surprising about the further education of graduates is the large fraction of graduates from technical/vocational programs of less than two years (26.4%) and from community college technical/vocational programs (32.7%), who



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completed or enrolled in another program within two years of completing their diploma or other credential in 1990. Since technical/vocational programs are supposed to be terminal programs, this is recycling of a serious magnitude. In view of the high unemployment rates for those technical/vocational students who did not continue their education, it looks as though a very large fraction never made it from the skills classroom to skill-using work. Since the specific skills taught by these programs are their only rationale, the immediate entry of their graduates into other programs represents a significant waste of resources.

The *Survey of 1990 Graduates* shows the type of program chosen by students who continued to study after their 1990 graduation. It is important to analyze these data since the issue has received such emphasis in *Training for What?*. Indeed, the only statistic in the report concerning educational outcomes is the finding that 14% of the students who enroll in BCIT have university degrees (TFW, p. 24.) This is taken as an important indicator that universities are not teaching the skills that employers demand. But this fact takes on a different significance when viewed in the context of the *Survey of 1990 Graduates*. It shows that 17.4% of the BA's in the humanities, fine arts, and social sciences who entered another program did, indeed, enter a technical/vocational program of some sort or other. However, there was also a reverse flow. 17.9% of the short-term technical/vocational graduates who continued their studies entered a university program as did a very substantial 45.7% of the graduates of community college technical and vocational programs who pursued further study. (It is worth reiterating that the community college graduates discussed here were not in university transfer programs.) The data show that university graduates enrolled in technical programs, and graduates of technical/vocational programs enrolled in universities. The Labour Force Development Board is worried about "increasing 'recycling' within the post-secondary system." (TFW, p. 24.) The phenomenon is greater among technical/vocational graduates than among university graduates.

The *Survey of 1990 Graduates* also recorded the highest level of schooling achieved before entering the program from which the students graduated in 1990. 7.8% of the students awarded a bachelor or first professional degree in 1990 had graduated from a one or two year technical or vocational program (not a university transfer program) before entering university. Likewise, 4.9% of the students who completed a vocational or technical program of two years or less had a university degree when they enrolled in the program. That there are university graduates at BCIT does not mean that universities should be downsized any more than the presence of BCIT graduates at UBC means that BCIT should be downsized. Both patterns indicate that students discover more about their abilities and aspirations as they progress through school.

Part V: What Do Students Learn in School?

The Labour Force Development Board is emphatically of the opinion that the "post-secondary learning system" should teach students the right skills. *Training for What?*, however, is none too clear as to what those skills are. Sometimes the right skills are narrowly defined and tailored to particular jobs, as when *Training for What?* says "future skills requirements point more toward career/technical and vocational training" and "there is also a significant gap in the ability of the learning system to meet the need for short-duration, targeted training aimed at specific skills development—what might be termed just-in-time training." (TFW, p. 29.) Sometimes, however, the right skills are (in the jargon of the Board) "employability skills,"—abilities which have heretofore been called the talents of a person educated in the Arts. These skills include the abilities to read, write, listen, and speak effectively, knowledge of languages, the ability to think critically and solve problems, basic numeracy, the ability to access and apply specialized technical knowledge, and the capacity to "continue to learn for life." (TFW, p. 21.)

The methodology of the Labour Force Development Board is badly adapted to assessing changes in the demand—and supply—of these skills. The demand for general skills is particularly hard to simulate, both because they are so generalized, and because they increase the productivity of particular skills. Who provides these skills—especially employability skills—is also murky.

The *Survey of 1990 Graduates* throws some light on who provides what skills. Students were asked whether their program provided them with "the skills needed for a particular job." The answers are not surprising—graduates of technical/vocational programs and applied university programs felt that they had learned specialized skills to a much greater degree than did graduates of Arts programs. Of more interest, however, were questions about "employability skills." Table 3 summarizes the responses to the question "did your program develop your skills in writing well?" The highest score was earned by the humanities where 69.3% answered "to a great extent," followed by the social sciences with 45.7%. Other programs were far behind. Only 26.8% of the graduates of community college technical and vocational programs felt that their programs had increased their ability to write well "to a great extent." A similar pattern character-

Table 3: Did your program develop your skills in writing well? Percentage who answered "To a great extent"

Community college	26.8%
"Applied" university	
Education	28.6
Commerce	24.2
Engineering	15.5
Nursing & other health	30.9
"Academic" university—Arts	
Fine & Applied Arts	27.7
Humanities	69.3
Social Sciences	45.7
"Academic" university—Sciences	
Agriculture & Biology	25.4
Math & Physical Sciences	20.8

Note: General and unclassified bachelor's degrees are excluded.

Source: Calculated from Statistics Canada, *Survey of 1990 Graduates*, 1992, public microdata file.

ized the answers to the question "did your program develop your skills in speaking well?" The humanities students again led the way followed this time by education and fine arts.

University Arts programs have always concentrated on teaching the "employability skills." Not surprisingly, students find that Arts Faculties do it more successfully than other programs. To spread competence in "employability skills," the provincial government should make education in "academic" programs (including the Arts) more widespread by integrating it into more technical/vocational programs.

Part VI: Are Skills Taught in School Used on the Job?

Are the skills taught in B.C.'s schools, colleges, and universities used in the workplace? The Labour Force Development Board believes that there is a problem in this area with respect to university graduates in "academic" areas. The "underemployment of graduates [of academic university programs] is increasing." (TFW, p. 29.) There is, indeed, a problem with the underutilization of skills in B.C. That problem includes university graduates but extends beyond them and involves technical and vocational graduates as well. The underutilization of skills does not indicate an imbalance between colleges and universities but is, instead, a feature of the persistence of high unemployment in Canada as a whole.

Two aspects of the underutilization of skills have already been discussed. The first was unemployment. The unemployment rate was highest among short-term technical trainees. The rate was, also, higher among community college technical/vocational graduates than among most university graduates. Unemployment represents an even greater loss of economic output than does underemployment.

The second example of underutilization was "recycling," that is students undertaking a second training program after they have completed a first. This problem was far greater among technical and vocational graduates than among university graduates. The technical and vocational graduates were all in terminal programs to prepare them for jobs. Only a few university graduates entered programs for which their degrees were not prerequisites and thus can be said to be recycled. Recycling is greatest among technical and vocational graduates—probably because they have trouble finding work (as evidenced by their unemployment rates) and because university graduates generally earn more money (as will be shown shortly).

Two other factors account for the underutilization of skills. First, some people (especially women) drop out of the labour force. There is not much difference across programs in this regard. Second, and much more important, many people end up in jobs that do not require the skills learned in school. The Labour Force Development Board discussed this problem only with respect to university graduates. However, the problem also afflicts technical and vocational graduates.

We can gain some insight into how many graduates find their training or education relevant to their work from the *Survey of 1990 Graduates*. Table 4 shows that only 28.8% of technical trainees and 37.3% of community college technical/vocational graduates were employed two years after graduation in jobs "directly related" to their schooling. University "applied" programs achieved the highest percentages—education led the way at 52.9%. Fine arts, humanities, and social sciences had low scores since they do not teach specific skills. The low percentages of graduates employed in jobs directly related to studies is a far bigger mark against technical/vocational programs than it is against Arts programs since the rationale of the former (but not the latter) is teaching skills that will be used on the job.

Table 4: What is the relationship of the studies completed in 1990 to the job you held last week?

Percentage "directly related"	
Trades/technical	28.8%
Community college	37.3%
"Applied" university	
Education	52.9
Commerce	28.8
Engineering	44.3
Nursing & other health	53.2
"Academic" university—Arts	
Fine Arts	9.6
Humanities	12.3
Social Sciences	14.9
"Academic" university—Sciences	
Agriculture & Biology	18.3
Math & Physical Sciences	29.5

Note: General and unclassified bachelor's degrees are excluded.

Source: Calculated from Statistics Canada, *Survey of 1990 Graduates*, 1992, public microdata file.

There are four reasons for the low fractions in Table 4. First, some people are not in the labour force. Second, some people are unemployed. Third, some have taken another program, so they are no longer working in a job using the skills of the program completed in 1990. Fourth, the job they have does not require the skills they learned in the program they finished in 1990.

Table 5 shows the relative importance of these factors. (This table is based on the mathematical identity explained in the notes to the table.) Unemployment and dropping out of the labour force were relatively unimportant in explaining the low carry-over of skills to employment since their associated proportions in Table 5 were close to one. The important factors were the pursuit of further education, and the low utilization of school-taught skills on the job. It is striking that, of people who were working and who did not take further training, less than half of the technical trainees and only five-eighths of the community college technical/vocational graduates had jobs directly related to their schooling. If people with training in specific skills do not end up in jobs using those skills, then what is the point of their training?



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Table 5: Factors accounting for graduates not working in jobs for which they were trained

	A	=	B	x	C	x	D	x	E
Trades/technical .....	.288	=	.950	x	.847	x	.736	x	.487
Community college .....	.373	=	.973	x	.912	x	.673	x	.625
"Applied" university									
Education .....	.529	=	.973	x	.950	x	.721	x	.793
Commerce .....	.288	=	.991	x	.940	x	.595	x	.520
Engineering .....	.443	=	.979	x	.929	x	.658	x	.740
Nursing & other hl .....	.532	=	.967	x	.973	x	.686	x	.824
"Academic" university—Arts									
Fine Arts .....	.096	=	.872	x	.805	x	.500	x	.273
Humanities .....	.123	=	.906	x	.936	x	.423	x	.342
Social Sciences .....	.149	=	.974	x	.914	x	.481	x	.349
"Academic" university—Sciences									
Agriculture/Biology .....	.183	=	.979	x	.929	x	.658	x	.740
Math/Natural Sciences .....	.295	=	.931	x	.884	x	.590	x	.607
Columns:									
A—proportion of graduates employed in jobs directly related to schooling									
B—proportion of graduates in labour force									
C—proportion of graduates in labour force who were employed									
D—proportion of employed graduates had had not taken a second course									
E—proportion of employed graduates without a second course who were employed of a job directly related to their schooling									
Column A equals the product of columns B through E. If the proportions in columns B through E all equalled one, then all graduates would be working in jobs directly related to their programs two years after completion. The smaller the value shown in columns B through E, the more important is that factor in diverting graduates away from jobs directly related to their programs.									
Note: General and unclassified bachelor's degrees are excluded.									
Source: Calculated from Statistics Canada, <i>Survey of 1990 Graduates</i> , 1992, public microdata file.									

Table 7: Women—Average annual full time earnings, 1991

	age			
	20s	30s	40s	50s
No high school diploma	19524	22575	23774	23340
High school diploma	21002	26027	26894	26893
Trade certificate	20756	24792	27180	25823
Community College	23680	28650	30374	30231
University, less than BA	25382	33202	3446	30918
Bachelor degree, all	29000	34354	38722	38762
"Applied" university				
Education	29539	33916	38379	37704
Commerce	31146	32984	39050	35000
Engineering	33614	31127	56095	--
Nursing etc	35562	36698	44218	44806
"Academic" university—Arts				
Fine Arts	22368	29165	28990	40634
Humanities	25720	27027	36183	37629
Social Sciences	27079	35941	39557	37629
"Academic" university—Sciences				
Agriculture/Biology	26423	35083	37150	39319
Natural Sciences	28118	40192	38813	19398
Bachelor+Bachelor in Ed.	29910	34958	40677	42268
Bachelor+Education cert.	27288	39032	40527	43060
Bachelor+certificate	28447	38886	38157	41433
Law	32731	51868	40000	--
Medicine	32023	68302	25502	40728
Masters	26846	41943	52640	42378
Doctorate	--	42414	50239	55066
Note: Bachelor degrees do not include first professional degrees in medicine or law. The latter are estimated by partitioning the sample using information on occupation and industry of employment.				
Source: Calculated from Statistics Canada, <i>Census of Canada, 1991</i> , Public Use Sample Tape.				

Part VII: Who Earns the Most Money?

Another criterion for assessing an educational program is the incomes earned by its graduates. The 1991 *Census of Canada* allows one to compare the lifetime earnings of people with different educational credentials. Tables 6 and 7 summarize the information for residents of British Columbia. The figures in these tables are average annual earnings for full time employees. Two tables are presented since the experiences of men and women were different. The tables contrast the value of technical training and community college technical/vocational programs with a high school diploma as well as the value of university degrees with technical and vocational training.

Tables 6 and 7 show a very mixed return to short-term technical training. The average earnings for men with technical certification were above those for high school graduates at all ages. It was another story for women, however. They did not receive higher earnings for completing short-term training programs, so there was no economic case for those programs.

Table 6: Men—Average annual full time earnings, 1991

	age			
	20s	30s	40s	50s
No high school diploma	26474	34759	40105	38106
High school diploma	27386	37859	43742	44107
Trade Certificate	31349	39804	43766	45318
Community College	30663	42183	47984	48797
University, less than BA	32952	44005	49816	48377
Bachelor degree, all	31678	47039	53856	55393
"Applied" university				
Education	32346	41797	44815	45756
Commerce	30490	49745	58660	54619
Engineering	37603	49378	61842	60298
Nursing, etc	33004	36443	50200	45803
"Academic" university—Arts				
Fine Arts	20440	32150	42351	--
Humanities	21904	41919	43220	45518
Social Sciences	31739	47697	56617	71724
"Academic" university—Sciences				
Agriculture/Biology	27589	45833	48624	--
Natural Sciences	31854	48248	52627	64422
Bachelor + certificate	28734	42251	51706	56213
Law	29375	57451	58490	67686
Medicine	47833	56932	88126	90267
Masters	39343	46485	58633	63834
Doctorate	20798	44373	63036	71164
Note: Bachelor degrees do not include first professional degrees in medicine or law. The latter are estimated by partitioning the sample using information on occupation and industry of employment.				
Source: Calculated from Statistics Canada, <i>Census of Canada, 1991</i> , Public Use Sample Tape.				

Two-year community college programs for both men and women did have a significant pay-off compared to a high school diploma. For men, earnings were increased 10-15% compared to what they would have been with only high school completion. For women, the earnings gain was less. This result parallels the situation for women with trades training.

Both men and women earned more if they had a university degree than if they did

not. The gain in earnings, however, was greatest for women. The premium started at \$5320 per year for women in their 20s and rose with age. (In considering these figures it is important to remember that they apply to people who did not obtain further degrees.) This premium was very strong for applied university degrees but also existed for the academic programs such as the social and natural sciences. Fine arts graduates did not usually earn more than community college graduates, but that is the only group for which that could be said.

Men with bachelor degrees (and no postgraduate training) had earnings only slightly above those of technically trained men in their 20s. At older ages, however, the average university graduate earned considerably more than the average community college technical/vocational graduate, especially in the popular fields of study, e.g. social sciences, commerce, engineering, and natural sciences. The lifetime earnings of men with terminal bachelor degrees in these fields exceeded the lifetime earnings of men with technical vocational degrees.

Men in other fields like education, nursing and other health fields, the humanities, and fine arts earned about the same over their lifetimes as community college graduates. It is important, though, that there are not many men in these areas. Women with degrees in these areas do much better compared to community college graduates than do men, which is a reason why students in these areas tend to be female.

Experience differences explain why men in their 20s with university degrees did not earn more than men with community college or technical training diplomas or other credentials. The non-university programs are of shorter duration than the university programs, so their graduates start working at a younger age. Therefore, the average 25-year-old, for instance, with only trade certification has more experience than the average community college graduate, who, in turn, has more experience than the average university graduate. Consequently, the person with less schooling earns relatively more money. When work experience is held constant, the earnings advantage of the technical/vocational graduates disappears. Thus, the *Survey of 1990 Graduates* records earnings two years after the completion of a program. The average graduate of a short-term technical program who was working full time earned only \$23,000, while the average community college technical/vocational graduate in his 20s earned \$27,000, and the average university graduate in the humanities earned \$28,000 with other fields earning more.

The high figures shown in Table 6 for technical and vocational graduates in their 20s are averages of the low earnings of inexperienced people aged 20-24 and of the much higher earnings of more experienced people aged 25-29. For men with trade qualifications, for instance, the figures are \$25,000 and \$34,000, respectively. Since the university graduates start working at an older age, the university graduates in their 20s shown in Table 6 are quite inexperienced and earn low salaries. The *Survey of Graduate* figures for the earnings of university graduates with two years of experience were similar to the census earnings figures for men in their 20s shown in Tables 6.¹

The jump in the earnings of university graduates when they turn thirty can be confirmed by tracking groups between the 1986 and the 1991 censuses. People who were 25-29 years old in 1986, for instance, were between 30 and 34 years of age in 1991. Table 8 compares the earnings of the same age cohorts of men and women in 1986 and 1991 for various degrees and fields of study. In all fields, including the Arts, university graduates received big increases over this period. Indeed, the percentage increases of university graduates were greater than the

¹ In general, the earnings figures in the *Survey of 1990 Graduates* corroborate those in the Census. An important exception, however, is men in their 20s with humanities degrees. The *Survey of 1990 Graduates* reports an average annual earning of \$28,000 rather than the \$22,000 shown in Table 6.



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increases realized by community college graduates. Table 8 shows university graduates overtaking community college graduates in earnings as they passed thirty. These results are particularly important, for they show that, even in the unfavourable labour market of recent years, university graduates of all sorts establish themselves economically by their late 20s and thereafter earn higher incomes than community college graduates.

Table 8: The earnings jump after age 30: Average annual earnings

	men aged 25-29 in 1986	men aged 30-34 in 1991	women aged 25-29 in 1986	women aged 30-34 in 1991
Trade certificate	28081	38660	18770	24024
Community College	27412	39954	21040	27777
University, less than BA .	26365	41982	25449	30030
Bachelor degree, all	27648	43661	22761	33018
"Applied" university				
Education	26048	39521	23644	32543
Commerce	27238	43755	20119	33338
Engineering	32758	47949	32453	40000
Nursing etc	30946	28633	26763	35738
"Academic" university—Arts				
Fine Arts	--	32367	14677	31513
Humanities	24360	40473	19993	24174
Social Sciences	23071	45858	20444	34487
"Academic" university—Sciences				
Agriculture/Biology	24659	38210	21634	33537
Natural Sciences	34889	44582	15000	37100

Source: Calculated from Statistics Canada, *Census of Canada, 1986*, and *Census of Canada, 1991*, Public Use Sample Tapes.

The earnings figures for undergraduate degrees shown in Tables 6 and 7 understate the value of a university education since many graduates enter masters and professional programs that lead to higher incomes. As indicated earlier, over half of Arts graduates continue their education. Tables 6 and 7 show the average earnings of people employed full time with masters degrees, law degrees, and medical/dental degrees. In evaluating the economic return to undergraduate programs, it is necessary to include the high earnings of the professional programs that they feed into.

The Labour Force Development Board found it puzzling that people wanted a university education and attributed it to "entrenched societal attitudes about the value of white-collar work." (TFW, p. 36.) The figures discussed here show that the preference for a degree is perfectly rational in terms of the economic gains for almost all programs. Most university graduates have lower unemployment rates and higher lifetime earnings than people with only high school diplomas or technical/vocational credentials.

Part VIII: The Economic Situation of the Fine Arts and Humanities

It is widely believed that graduates in fine arts and the humanities do poorly in the labour market. A full consideration of the facts indicates that there is not a serious problem. So far as earnings are concerned, Table 7 shows that women in the humanities—and the majority of humanities graduates now are women—earn more than community college graduates, and women in fine arts do about as well over their lifetimes as community college graduates. Men do not do as well, but there are not many men going into these areas.

Moreover, most people with a BA in the humanities get a further professional degree for which the BA is a prerequisite. Many get masters degrees in the humanities or other fields, law degrees, or education degrees. The "employability" skills taught to humanities graduates have a high pay-off in these areas. Since the extra return to further study is very high and (officially or in practice) requires a bachelors degree, the combined BA and graduate work should be thought of as a single—lucrative—unit. All of these options propel students into much higher income levels.

Finally, as noted above, humanities students are often less concerned about their earnings prospects than students in other programs. The *Survey of 1990 Graduates* asked respondents "When you decided to enrol, how important was it for you to improve your chances of a good income?" Table 9 shows the proportion who answered "very important" by field of study. The chance of a good income was very important to most students in most programs, but not in the humanities. Thus, three quarters of the community college technical/vocational students said the chance to make a good income was "very important," as did 78% of the commerce students and about two-thirds of other university undergraduates. However, only 45% of the humanities and 39% of the fine arts students felt as strongly about the chance of making a good income. Students pursued these subjects as much for their intrinsic satisfaction and importance as for the income they expect to receive after completing the programs. This finding runs counter to the view of the Labour Force Development Board that "research has shown that, across all program areas, students have strong expectations of preparing themselves for work and improving themselves financially." (TFW, p. 36.) Moreover, it is of some interest that humanities graduates who said the chances of a good job were "very important" had considerably higher incomes than those graduates who thought money was less important—\$33,000 per year versus about \$20,000 for men and \$27,000 versus \$20,000 for women. A humanities degree was no impediment to those who sought a lucrative job. However, on the average, the objectives of fine arts and humanities students are different from those of other students, and those differences ought to be recognized in educational planning.

Table 9: When you decided to enrol, how important was it for you to improve your chances of a good income?

Percentage Who Answered "Very Important"	
Community College	75.9%
"Applied" University	
Education	67.6
Commerce	78.3
Engineering	65.7
Nursing & Other Health	60.5
"Academic" University—Arts	
Fine & Applied Arts	39.4
Humanities	44.8
Social Sciences	68.0
"Academic" University—Sciences	
Agriculture/Biology	64.9
Math/Physical Sciences	65.9

Note: General and unclassified bachelor's degrees are excluded.
Source: Calculated from Statistics Canada, *Survey of 1990 Graduates, 1992*, public microdata file.

Part IX: Why do University and College Graduates Compete for Jobs?

When the earnings data are combined with occupation data, they throw light on another issue that concerned the Labour Force Development Board; namely, that graduates of academic programs "are competing for the same work as college graduates." (TFW, p. 25.) Three occupations where this is happening are management, sales, and service. Many men who completed college and shorter term technical programs work in these areas, as do many men with BAs in social science. Table 10 shows the earnings realized in these fields by nonuniversity graduates, social science graduates, and commerce graduates. The latter, of course, are from the "applied" academic program dealing with these areas. People with master's degrees (many of whom are MBAs) are also included for comparison purposes.

Table 10: Annual earnings of men in three occupations, 1991

	age			
	20s	30s	40s	50s
Managers/Administrators				
No high school diploma	31228	39891	54966	55920
High school diploma	30629	44454	50549	56533
Trade certificate	36385	43049	48518	55808
Community College	35845	50865	55903	56654
BA—Social Sciences	32248	55999	70922	71865
BCom	31480	52269	67448	69343
Masters	40500	52773	73031	75030
Sales				
No high school diploma	28535	33619	40709	37913
High school diploma	24684	39397	45744	40858
Trade certificate	29953	37579	47569	54156
Community College	29199	44489	46811	55813
BA—Social Sciences	33874	51740	60885	125000
BCom	28983	53118	45071	45000
Service				
No high school diploma	22897	29824	31580	29202
High school diploma	24328	36620	40639	39362
Trade certificate	30876	31275	39923	37688
Community College	29216	37275	44505	37532
BA—Social Sciences	38092	52453	82000	78359
BCom	36000	45489	57500	—

Source: Calculated from Statistics Canada, *Census of Canada, 1991*, Public Use Sample Tape.

What is striking about Table 10 is the success of university graduates, in general, and of social science graduates, in particular. Begin with managers and administrators. Among men in their 20s, people with trade qualifications and community college technical credentials earn more than managers with bachelor degrees and almost as much as people with master's degrees or postgraduate certificates. The situation changes, though, as people gain experience. The earnings of all educational categories rise with age. Men with technical or vocational training plateau out at about \$55,000 per year. (It is of some interest that community college graduates in their 50s who are managers do not earn more than high school drop-outs in the same occupation.) The earnings of university graduates, however, continue to rise so that the average manager with a university degree earns \$70,000 or more. These are the men who are senior managers and administrators in the large public institutions and private corporations in the province. Senior management in B.C. is drawn mainly from university graduates. It is of some interest that social science graduates do somewhat better than commerce graduates at these levels and, indeed, almost as well as MBAs. This is an indication that general abilities rather than specialized skills are the keys to success in the high levels of management.

It is a similar story in sales and service occupations. Generally speaking, community college graduates do no better than high school graduates in these activities. When they are in their 20s, university graduates in sales do not earn more than people with vocation or technical training, although even



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in their 20s university graduates do better than others in service occupations. After their 20s, however, social science and commerce graduates rapidly pull ahead of those without university education and earn much higher incomes in their 40s and 50s.

To return to the concerns of the Labour Force Development Board, it is true that many university Arts graduates compete with community college graduates in the same occupations. In the cases discussed here, however, this is not because the university graduates could not get better jobs. The salaries they earn in management, sales, and service are comparable to the average salaries shown in Table 6. The university graduates compete—successfully—against college graduates because university training makes the university graduate more productive, and because returns to that productivity can be realized in management, sales, and service.

These considerations also resolve a question the Labour Force Development Board found mysterious: namely, why employers preferred to hire university graduates. "Do employers really want and need university graduates as opposed to career and vocational ones?" (TFW, p. 23.) The question could be sharpened by adding "even though the university graduates cost more." Unless one wants to argue that businesses do not minimize their costs, the answer is that the businesses pay more for a university graduate since the graduates are more productive. In other words, the earnings figures discussed here can be interpreted as measures of productivity. Since social science graduates, who lack specific skills in management, sales, or service, earn as much as anyone, the high returns to university graduates in these areas represent the returns to general skills. The pay-off to learning to write well at age 20 comes at age 50, both to the individual and to his or her employer. The focus of the Labour Force Development Board on specific skills means that it fails to understand the supply and demand for people in management, sales, and service.

Part X: Conclusion

The evidence reviewed in this study points to general conclusions about the roles of vocational training and education in British Columbia.

First, a large post-secondary education system is important to British Columbia for economic reasons. Since people with more education—including graduates of

academic university programs—earn more than people with less education, providing more college and university educational opportunities increases the lifetime earning prospects of children growing up in B.C. Moreover, the high earnings of university graduates indicate that they make a substantial contribution to economic growth, so expanding colleges and universities is important to the economic development of Canada.

Second, the COPS model is not an adequate technology for forecasting the demand for various skills in B.C., so educational planning cannot be based on that model. It has become a truism that bureaucrats cannot "pick winners" when it comes to industrial investment and physical capital formation. The COPS model will not make them any better when it comes to human capital formation.

Third, under these circumstances, the best guide to expanding the post-secondary educational system is whether students want to take a program. For most students outside the fine arts and humanities, the decisive consideration is whether the program leads to a job paying a high wage.

Fourth, most technical training programs are not strong candidates for expansion since the unemployment rates of their graduates are high and, in the case of women, the wage premium over simply finishing high school is nonexistent.

Fifth, two-year community college technical/vocational programs have a higher economic pay-off than do shorter term technical trades programs. This may be because the specific skills they teach are more valuable, or it may be that they teach more general "employability" skills simply because they last longer.

Sixth, it is remarkable that the more specific the skill training, the higher the unemployment rate.

Seventh, university Arts programs are more effective than any other program in teaching "employability" skills. The employability skill content of vocationally oriented programs could be increased by incorporating more Arts education into them.

Eight, most university programs generate higher returns than are realized by community college students. Unemployment rates are low and wages are high even for Arts students. That is the reason many students want university degrees. That is also a good reason for expanding university programs.



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UBC GAZETTE

The Board of Governors took the following actions at its meeting held on March 21, 1996.

Finance

The following 1996-97 ancillary budgets, and any rate changes contained therein were approved.

- Applied Research and Evaluation Services
- Athletics and Sport Services
- Biomedical Communications
- UBC Bookstore
- Computing and Communications
- UBC Food Group
- Housing and Conferences
- Parking Services

On the understanding that the recommendations have met all the requirements of the AMS constitution, the following requested increases and redirection of Student Association fees were approved with effect from September 1, 1996.

The portion of the existing AMS fees presently designated for the support of Athletics (\$7.00) be redirected in the following manner:

- an additional \$1.50 to intramurals
- an additional \$.50 to the World University Service of Canada
- to AMS external and university lobbying and advocacy, and
- to AMS Resource Groups

The Alma Mater Society fee be increased by \$3.00 per student for three years for the purpose of establishing the Mrs. Evelyn Lett Childcare Bursary Endowment.

The Engineering Undergraduate Society fee be increased by \$5.00 per student to establish the Engineering Undergraduate Student Endowment Fund.

The Commerce Undergraduate Society fee be increased from \$8.00 per student to \$16.00 per student for the purpose of ensuring minimum funding for clubs and committees, the Cavalier, and subsidies to intramurals.

The Law Students Association fee be increased from \$12.00 per student to \$50.00 per student for support of the Association's activities.

The Board authorized the University signing officers to execute the Innovative Projects Fund Agreement between the Alma Mater Society and the University that provides for the University to recover its costs of operating the commercial space in the Student Union Building.

Academic and Student Affairs

Acting on Senate recommendations, the Board approved the following:

- Enrollment quotas for 1996-97
- Establishment of a Professorship in Accounting to be known as The CA Professorship in Accounting
- Establishment of the Centre for Advanced Wood Processing

Employee Relations

The agreement with the Faculty Association on Reduced Appointments was approved.

The Board approved the Faculty Housing Assistance Program.

Policies

The Board approved the following policies:

- Records Retention and Disposition
- University Archives
- University Killam Professors

In addition, deletion of the following policies was approved:

- Policy #48—Reduced Workload Responsibility: Faculty
- Policy #66—Use of Residences During Winter Session
- Policy #77—Travel and Absences from Work

Appointments

In response to the resignation of Ms Barbara Crompton as a member and Chair of the Board on February 26, 1996, Ms Shirley Chan was elected Board Chair for the period March 21,

1996, to August 31, 1996. (The Board at its meeting on July 20, 1995, elected Ms Chan as Board Chair for the period September 1, 1996, to August 31, 1997, to succeed Ms Barbara Crompton whose term of office as a member of the Board would have expired on September 5, 1996.)

Ms Evelyn Carroll was appointed to the transition Board of the B.C. Women's, B.C. Children's and Sunny Hill Hospital.

Dr. Joanne Emerman was appointed as the Board's representative to replace Dr. William Cullen on the following Councils:

- B.C. Medical Service Council
- Council of University Teaching Hospitals (COUTH)

Dr. Bernard Bressler was appointed to the Board of Directors of PAPRICAN to replace Dr. Martha Salcudean.

Dr. John A. Cairns was appointed Professor of Medicine, without term, and Dean of the Faculty of Medicine for an initial term of five years and six months from January 1, 1997, through June 30, 2002.

Dr. Barry McBride was reappointed Dean of the Faculty of Science for a six-year term from July 1, 1996, through June 30, 2002.

Other Business

As required under Section 24 of the University Act, the Board declared a vacancy on the Board because of the resignation on February 26, 1996, of Ms Barbara Crompton.

The Board designated the week of October 13-19 as "UBC Health Sciences Week."

March 1996

The Board of Governors at its meeting of March 21, 1996 approved the following recommendations and received notice about the following items:

Barry C. McBride, Dean, Faculty of Science, July 1, 1996 to June 30, 2002.

Brian Elliott, Head, Department of Anthropology & Sociology, July 1, 1996 to June 30, 2001.

Kenneth Bryant, Head, Department of Asian Studies, July 1, 1996 to June 30, 2001.

James Caswell, Head, Department of Fine Arts, July 1, 1996 to June 30, 1997.

Serge Guilbaut, Head, Department of Fine Arts, July 1, 1997 to June 30, 2002.

Richard Hodgson, Head, Department of French, July 1, 1996 to June 30, 2001.

Peter Stenberg, Acting Head, Department of Germanic Studies, July 1, 1996 to June 30, 1997.

Jesse Read, Director, School of Music, July 1, 1996 to June 30, 2001.

Marion Crowhurst, Acting Head, Department of Language Education, Jan 1, 1996 to June 30, 1996.

Peter Danielson, Acting Director, Centre for Applied Ethics, Jan 1, 1996 to June 30, 1996.

John Schrader, Director, Biomedical Research Centre, May 1, 1996 to Apr 30, 1999.

Clive Duncan, Head, Department of Orthopaedics, Jan 1, 1996 to June 30, 2001.

Ross Petty, Acting Head, Department of Paediatrics, Jan 1, 1996 to June 30, 1996.

Gary Relyea, Assistant Professor, School of Music, July 1, 1996 to June 30, 1999.

Peter Darke, Assistant Professor, Faculty of Commerce & Business Administration, July 1, 1996 to June 30, 1999.

Kai Li, Assistant Professor, Faculty of Commerce & Business Administration, July 1, 1996 to June 30, 1999.

Tan Wang, Assistant Professor, Faculty of Commerce & Business Administration, July 1, 1996 to June 30, 1999.

Bonny Pierce, Assistant Professor, Department of Language Education, July 1, 1996 to June 30, 1999.

Paul Wood, Assistant Professor, Department of Forest Resources Management, July 1, 1996 to June 30, 1999.

Younes Alila, Assistant Professor, Department of Forest Resources Management, Feb 1, 1996 to June 30, 1999.

Michael Burgess, Associate Professor, Centre for Applied Ethics/Department of Medical Genetics, Jan 1, 1996 (tenured).

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UBC GAZETTE (continued)

C. James Frankish, Assistant Professor, Department of Health Care & Epidemiology, Nov 1, 1995 to June 30, 1998.

Clive Duncan, Professor, Department of Orthopaedics, Jan 1, 1996 (tenured).

Joy Kirchner, General Librarian, Library, Feb 26, 1996 to June 30, 1999.

CHANGES TO HIRE DATES
Lori Kennedy, Assistant Professor, Department of Geological Sciences, from Feb 1, 1996 - June 30, 1999 to Mar 1, 1996 - June 30, 1999.

Curtis Suttle, Associate Professor, Department of Oceanography, from Jan 1, 1996 (tenured) to April 1, 1996 (tenured).

RESIGNATIONS

R. Earl Blaine, Associate

Professor, Faculty of Commerce & Business Administration, Dec 30, 1996.

T. Roy Bentley, Professor, Department of Language Education, June 29, 1996.

Douglas Golding, Associate Professor, Department of Forest Resources Management, June 29, 1996.

John A.R. Coope, Professor, Department of Chemistry, June 30, 1996.

Carl Seger, Assistant Professor, Department of Computer Science, Dec 31, 1995.

DEATHS

The Board learned, with regret, the death of:

David C. Thomas, Associate Professor, Department of Educational Psychology & Special Education, Feb 20, 1996.

Classified

The classified advertising rate is \$15.75 for 35 words or less. Each additional word is 50 cents. Rate includes GST. Ads must be submitted in writing 10 days before publication date to the UBC Public Affairs Office, 310 - 6251 Cecil Green Park Road, Vancouver B.C., V6T 1Z1, accompanied by payment in cash, cheque (made out to UBC Reports) or internal requisition. Advertising enquiries: 822-3131.

The deadline for the May 23, 1996 issue of UBC Reports is noon, May 14.

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Dr. Rhodri Windsor-Liscombe

Professor, Dept. of Fine Arts

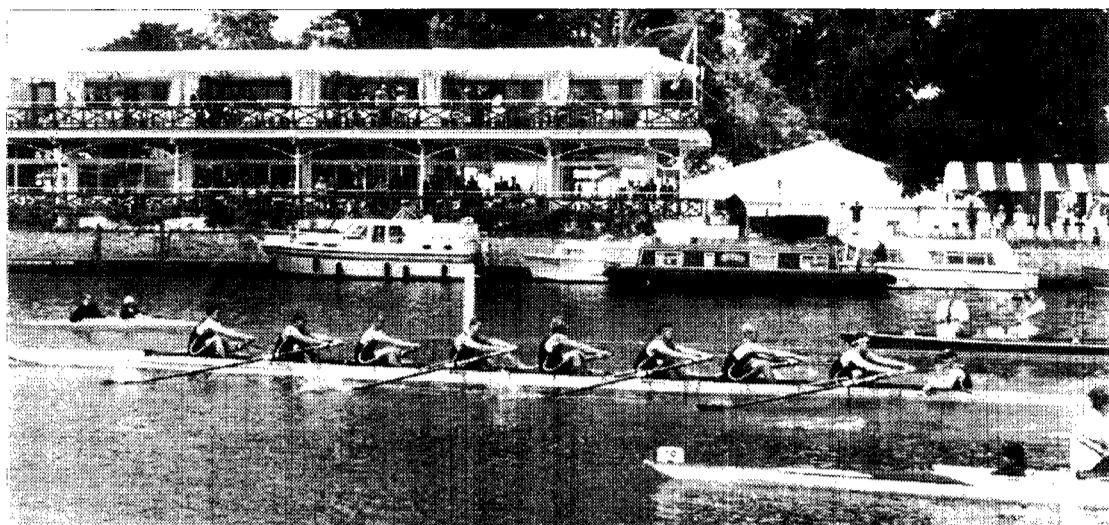
*"Reconstructing Modernist universality
in post-war Canadian architecture"*

Tuesday, May 7, 1996 @ 5:30 pm
Public Forum @ 7:30 pm

All events will be held in the Coach House at Green College, 6201 Cecil Green Park Road.

T-bird notes

by Don Wells
Thunderbird Athletics



UBC men's eight competed at the prestigious Royal Henley Regatta at Henley-on-Thames in July 1994.

New rowing program open to public

UBC rowing coach **Mike Pearce** admits he has a problem. He is the man who is currently in charge of maintaining a legacy which began in 1932 when a young oarsman named **Ned Pratt** was the first UBC student to win an Olympic medal—a bronze in double sculls.

Pearce's problem is money. Specifically, money for boats, a boathouse and more opportunity for his best athletes to compete so that the Olympic legacy can endure. But don't mistake that for a cry for help. He also has a solution, and it's a good one.

Pearce and his assistant coaches recently unveiled their plans to stage an eight-week program aimed at introducing neophytes to the sport of rowing. Any corporate or community group will experience a rigorous training program from certified UBC coaches, some of them former Olympic competitors, ending with a full-fledged regatta on False Creek and a post-race barbecue and awards party at the Vancouver Rowing Club.

Similar programs are available annually in Victoria and in Sydney, Australia and they have proven extremely popular, not to mention lucrative. The program offered by Victoria City Rowing Club has grown to involve an enormous field of competitors and puts six-figure profits into club coffers at the conclusion of its wind-up regatta.

Noting the recent explosion of participation in dragon boat racing in Vancouver, Pearce is confident that the UBC Corporate Community Challenge will experience similar success.

"It offers the same camaraderie as dragon boating, but it also offers first-timers a chance to experience a sport which is steeped in history and tradition, particularly in Vancouver, at almost three times the speed of a dragon boat!"

The program, which runs May 27-July 19, offers a range of instruction from safety and boat handling to training regimens and racing tech-

niques. All training and racing will be done in "eights" which are boats that require eight rowers and one coxswain. Teams should find 10 people to provide an extra person in the event of an absence, illness or injury and be members of the same company, club or affiliates of the same group or association. Spouses and family members are also eligible.

Each team must have a minimum of two men and two women, excluding coxswain, and each participant must have basic swimming skills.

Size is not a barrier, according to Pearce, who stresses "winning teams are the result of close teamwork, enthusiasm, a willingness to learn and absorb a lot of rowing information in a short period of time. The coxswain should be small in stature but big in confidence. A strong voice helps too!"

The participation fee is \$1,200 per team and includes two nights of training per week, trophies and medals, the post-regatta barbecue, insurance and a one-year membership in the Canadian Amateur Rowing Association.

Proceeds will go toward overcoming what Pearce says are the only obstacles standing in the way of continuing the legacy which the late Ned Pratt began in the 1932 Olympics.

"Right now we have national team men and women, but they need more opportunity to compete at an elite level to make that final step toward top international events," said Pearce. "We also need a better boat for our women's team and the price tag is in the neighborhood of \$25,000. Then our next objective is to build a boathouse on False Creek."

While competing at the University of Washington Regatta in Seattle, Pearce and his crew members were awestruck by the Husky boathouse and its adjoining museum. "The ghosts of rowing past are in every crack and crevice," said Pearce, who has also visited the fabled boathouse at Harvard. "It's a shame that we haven't been able to better preserve our history."

Shame indeed. With all due respect to Pratt, who most people

remember as a renowned architect, UBC rowers really vaulted into international prominence in 1954 when a UBC crew won the British Empire Games gold medal on the Vedder Canal. The following year another crew was a finalist at the prestigious Royal Henley Regatta. The next year was an Olympic year and, under the late and legendary **Frank Read**, UBC's four-man crew won a gold medal and the eight took home silver.

Another silver medal followed in 1960 and in 1964 **George Hungerford** and **Roger Jackson** won gold in the pairs event. Twenty years later **Pat Turner** and **Paul Steele** were members of a gold medal winning eight at the '84 Olympics. That same year UBC's women rowers stepped up to the medal podium, led by three-time Olympian **Tricia Smith**. Along with pairs partner **Betty Craig**, she won a silver medal.

In 1992, UBC rowers were in both the men's and women's gold medal winning eights. UBC's **Mike Rasher** and **Megan Delahanty** were members of those crews and so were former students **Kathleen Heddle**, **Brenda Taylor** and **Jessica Monroe**. And with the qualifying events for the Atlanta Games fast approaching, UBC graduates **Jack Walkey** and **Emma Robinson** are training hard to be the next Thunderbird athletes to stand on top of the podium to strains of O Canada and the admiration of millions of television viewers throughout the world.

Strange that when Pearce talked about what comprises a winning team, he forgot to mention the importance of goal-setting. Strange because Pearce and his devoted team of assistants, alumni, and supporters like **John Richardson**, **Norman Hildes-Heim**, **Rob Hartvikson**, **Peter Andrews** and **David McLean** appear to be very focused on several big goals—more Olympic medals, hopefully a World Championship, and maybe even a win at Henley. But for now it's regattas, a boat and a boathouse.

For more information on the UBC Corporate Community Challenge, call the UBC Rowing Office at 822-5631.

People

by staff writers

Natalie Dakers, manager of life sciences technology transfer in the University-Industry Liaison Office, has been elected vice-president, Canada, for the U.S.-based Association of University Technology Managers (AUTM).

Dakers will represent the Canadian membership on the AUTM board and within the organization, highlighting Canadian issues and increasing the profile of the Canadian membership.

Within Canada, Dakers will work with member universities and affiliated organizations to address and resolve common issues related to technology transfer.

The AUTM represents more than 1,500 technology transfer professionals in universities, hospitals, research institutes, government and industry.

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Mike Mosher has been named head coach of the UBC Thunderbird's men's soccer team.

Mosher is a former T-Bird who played on three CIAU champion teams, four years in the Canadian Soccer League and four seasons with Canada's Olympic team.

Mosher's father, Dick, coached the T-Birds from 1986 to the end of last season and will continue to coach the women's team.

Mike Mosher came to UBC in 1987 and was named Canada West All-Star three years in a row. He was captain of Canada's Olympic team from 1988 to 1992. He graduated from UBC in 1992 with a BPE and is completing a master's degree in Sport Management.

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Marilyn Dewis, who recently retired as an assistant professor in the School of Nursing, has won an Award of Excellence in Nursing Education from the Registered Nurses Association of B.C.

Dewis, who taught for more than 30 years, was coordinator of the UBC-Vancouver Hospital Joint Baccalaureate in Nursing program—an innovative program that was the first of its kind in Canada.

She also developed nursing curricula, wrote chapters for nursing textbooks and reviewed nursing texts for major publishing houses.

As a researcher, she is recognized internationally for her work in injury prevention.

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David Stapells, associate professor in the School of Audiology and Speech Sciences, has been honoured by the editors of the journal *Ear and Hearing* for his research on tone-evoked auditory brain stem response audiometry.

The Outstanding Research in Audiology and the Hearing Sciences award was granted for a study that addressed the early identification of frequency-specific hearing loss in infants and young children. It is the second time Stapells has won the award.

Agriculture to give international option

UBC's Senate has approved a new study option in International Resource Systems within the BSc (Agr) degree.

"The objective of this program is to provide students with a good science foundation, a second language, cultural sensitivity and both academic and firsthand knowledge of resource systems in Canada and abroad," said George Kennedy, director of International Programs in the Faculty of Agricultural Sciences. "Graduates from this program will have the global perspective increasingly required for jobs in agriculture and other resource sectors."

The program, which begins this September, will help students develop cross-cultural awareness through language and cultural training during a year of studying abroad, he added.

Students will study a resource theme such as aquaculture, plant

protection, wildlife or nutrition and food safety, and will focus on one of three regions: Asia Pacific; Europe; or the Americas.

The program requires students to earn 12 language credits and to experience education abroad. For example, students choosing the Asia Pacific region may take Chinese, Japanese, Korean or Indonesian at UBC and spend their third year at one of more than 20 partner institutions in Australia, Hong Kong, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Taiwan. Study tour opportunities carrying academic credit are also available in Indonesia and Japan.

Applicants must have completed first-year Agricultural Sciences, Arts or Science with a 70 per cent average.

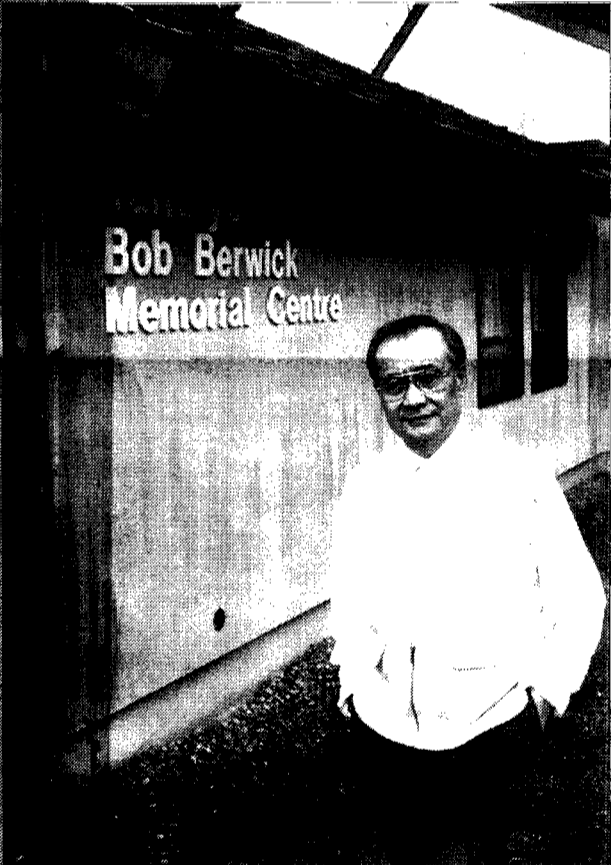
For more information, call 822-2193, fax 822-2184 or send e-mail to iprogram@unixg.ubc.ca

25 years of service

by Gavin Wilson
Staff writer



Rumley



Chang



Le Marquand

32 staff members join club after 25 years of service

UBC's 25 Year Club welcomes 32 new members this year—staff who have given a quarter-century of service to the university.

President David Strangway will host the new members at the 26th annual dinner May 16 at the Totem Park Residence Ballroom.

The new members are:

- **Gay Huchelega**, Agricultural Sciences
- **Gilles Galzi**, Animal Science
- **Elaine Le Marquand**, Botanical Garden
- **Melvyn Davies**, Botany
- **Liane Darge**, Chemistry
- **Isabel Spears**, Child Study Centre
- **Robert Paton**, Dental Clinic
- **Anthony Leugner**, Electrical Engineering
- **Jill Darling**, Financial Services
- **Virginia Anthony**, Health Care and Epidemiology
- **Violet Gee**, Housing and Conferences
- **Nancy Wyatt**, Library
- **Penne Huggard**, Library
- **Ann Hutchison**, Library
- **William Chong**, Medicine
- **Joyce Scott**, Oral Biology
- **Mary Anne Potts**, Physics
- **Mohammed Ali**, Plant Operations
- **Paul Chang**, Plant Operations
- **Arthur Crisp**, Plant Operations
- **Irene Growchowski**, Plant Operations
- **John Heady**, Plant Operations
- **Doris Lee**, Plant Operations
- **James Medley**, Plant Operations
- **Larry Mosser**, Plant Operations
- **Kyriakos (Gus) Vlachos**, Plant Operations
- **Ashley Herath**, Plant Science
- **Edith Singh**, Psychiatry
- **Alvia Branch**, Registrar's Office
- **Colleen Mullen**, TRIUMF
- **Gerald Paulsen**, University Computing Services
- **Rosanne Rumley**, Visiting Professors Program

Rosanne Rumley

You could say Rosanne Rumley is UBC's version of a talk show host—she's organized the most high-profile lectures on campus for two decades now.

After a stint as departmental secretary in Geophysics and Astronomy, Rumley landed the coveted position of administrative assistant for the Cecil H. and Ida Green Visiting Professorships in 1977.

Since then the job has expanded and today includes the Dal Grauer Memorial Lecture, the J.V. Clyne Lecture, and the venerable Vancouver Institute lecture series, among others.

Founded in 1916, the Vancouver Institute is one of North America's premier town-gown events, attracting audiences of up to 1,200 to hear scholars, scientists, authors and prime ministers speak.

Some of the notables Rumley has hosted include Margaret Atwood, Timothy Findley, Conor Cruise O'Brien, Stephen Lewis, Marilyn French, Alex Colville and Joseph Campbell.

"We have had some truly amazing people here, and yet for the most part they are in-

credibly gracious. Only a very small element are difficult, and we seldom have a cancellation."

Rumley occasionally finds herself in the spotlight instead of in her usual place behind the scenes. A lyric soprano, she once sang with choirs, but today limits her performances to weddings and funerals.

"I adore Verdi and Puccini. I don't have the dramatic voice to sing it, but I do anyway!"

"We have had some truly amazing people here..."

—Rosanne Rumley

Paul Chang

The pride Paul Chang has in his workplace is obvious as he tours a visitor around Berwick Centre—a campus preschool that integrates special needs kids with children from the surrounding community.

The facilities are impressive:

large, well-equipped classrooms with three teachers for each class of 12 kids, a music room, gymnasium, even an indoor pool. Two-way mirrors allow parents, visitors and researchers to view classrooms from observation areas.

"The kids who come here are really lucky."

—Paul Chang

Operated by the Vancouver-Richmond Association for Mentally Handicapped People, the building is maintained by UBC.

"The kids who come here are really lucky. This is a wonderful place," said Chang, who maintains the building, as well as the Mather Building and the Adult Education building on Toronto Road.

The people at Berwick must think Chang is pretty wonderful too, judging by the poem about him, called "My Friend," written by parents on behalf of their child and printed in a newsletter.

Originally from China, Chang lived in Spain for several years before arriving in Canada in 1970. He joined UBC a year later.

The secret to enjoying your job, he said, is to find ways of constantly learning new things. This love of learning has rubbed off on his own children, both of whom are now enrolled in graduate programs at UBC.

"I'm really proud of them," Chang said.

Elaine Le Marquand

It was watching other UBC employees that first planted the seed in Elaine Le Marquand's mind—she wanted to work in a garden.

A horticulturalist, she has worked for the past 22 years at the Botanical Garden's nursery on south campus, propagating plants for its famous collection of rare and exotic varieties.

Le Marquand spent her first three years at UBC working in the library, but she soon realized that her interests lay elsewhere.

"I got tired of pushing paper every day," she said. "I'd look outside and see people working

there and I'd think, 'That's where I want to be.'"

An avid gardener at home, she left her library job and after about a year, got an entry level job at the nursery and has since worked her way up to her current position.

"Every day is a good day."

—Elaine Le Marquand

"Things just worked out nicely for me. I really enjoy coming in every day. Every day is a good day."

A bonus is the nursery's location on South Campus Road, far from the hustle and bustle of the campus core.

"It's like coming out to a country retreat every day. It's really quiet."