



Occupational asthma in crab plants

- Curing Parkinson's in fruit flies
- Preventing adult illiteracy
- Stormrunners



A MESSAGE FROM THE VICE-PRESIDENT (RESEARCH)

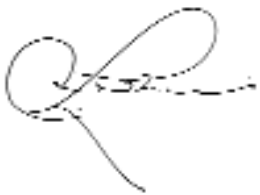
Memorial University is the largest university east of Quebec City, and the largest research and development organization in Newfoundland and Labrador. In fiscal 2003/04, Memorial's total research funding is expected to reach \$72 million; a doubling of research income since 1999/00.

As public investment in research continues, and our success in national competitions grows, it is increasingly important that we communicate the positive impact research is having on the economic and social well-being of our province and country; hence the name of our publication.

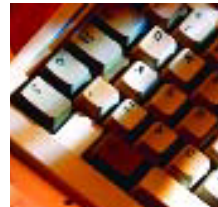
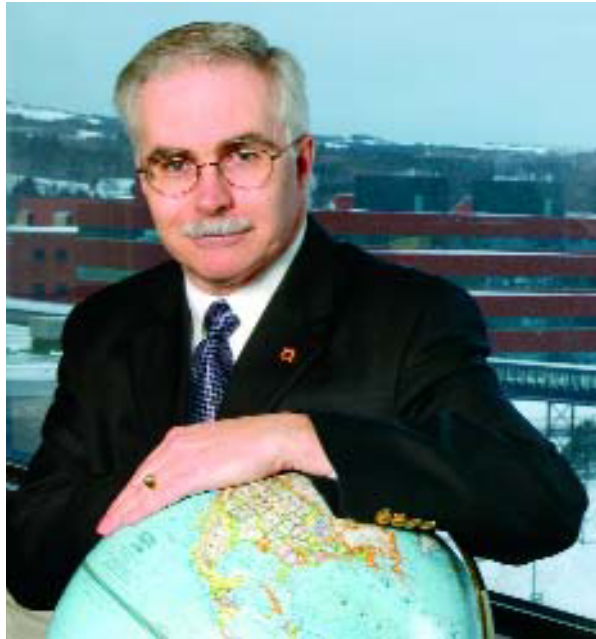
We are pleased to launch *Research Matters* in its new format. In this issue, we feature research by a diverse group of scholars at Memorial. It provides insight into some of the important research projects underway at our university, and the impact this is having on Newfoundland and Labrador and the world.

We hope you find it informative, enjoyable and that you learn more about how research matters.

Yours sincerely,



Dr. Christopher Loomis
Vice-president (research)



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“Taking photos is a way to capture a moment – to stop or hold time because that moment holds meaning. That’s the underlying assumption of my study.”

Dr. T. A. Loeffler

Capturing the meaning behind the photos of outdoor experiences

By Lisa Hoffe

For most of us, the old saying 'a picture is worth a thousand words' is usually accurate, even if it is cliché. When it comes to filling in friends or family about our travels or experiences, many of us are content to let the pictures do most of the talking.

But a current research project by Dr. T. A. Loeffler is turning that practice on its head. In interviews with participants, she is attempting to mine photos for the thousand words' worth of meaning underneath the surface. In particular, the professor at Memorial's School of Human Kinetics and Recreation is digging for the meaning in students' experiences in outdoor recreation programs. She hopes this kind of research may assist those involved in understanding and measuring the value of recreation programs or designing new ones in the future.

Dr. Loeffler's exploratory study, *A Photo Elicitation of the Meanings of Outdoor Experience*, has received a \$5,000 vice-president Academic Research Grant. In the autumn of 2002, Loeffler travelled to Hampshire College, a private university in Amherst, Massachusetts, to interview 14 students about pictures they took on previous outdoor outings with the school.

Hampshire College is well known for its strong Outdoors Program/Recreational Athletics or OPRA which, according to program literature, touts the "fusion of body and intellect" and gives special emphasis "to integrating outdoor and physical learning experiences with the rest of college life." Her co-investigator for the study is Dr. Karen Warren, OPRA faculty member.

Students in the study ranged in age from 18 to 21. They were interviewed about photos they took while on backpacking, sea kayaking, rock-climbing or canoeing excursions. Some experiences were as short as a weekend and others as long as a three-week trip.

Dr. Loeffler credits a stroll through the library for the idea. "I sometimes just go to the library and walk through the stacks to see where I'm called. And I put my hand on a book called *Visual Anthropology*.

I found it was quite a fascinating research methodology, using photography as a research tool."

She then went to the photographic literature to more clearly understand why people take pictures. "It is a way to capture a moment – to stop or hold time because that moment holds meaning. That's the underlying assumption of my study. These students, when engaged in this outdoor activity, will just naturally, through our culture and the 'Kodak moment', capture those moments that are meaningful."

Outdoor education at Memorial uses an experience-based learning model. "Students have an experience and we then get them to reflect on that experience. They then generalize and try to take away why that experience was important, and then apply that to their next piece of learning and also to their lives," says Dr. Loeffler.

According to her, there has been a lot of research in outdoor education about the process but not necessarily about the meaning. "The meaning of the experience is somewhat of an abstract subject, and perhaps using the photo elicitation techniques would give people an opportunity and a methodology for speaking about that meaning both in a metaphoric sense, in terms of what they actually captured, and how they spoke about it."

Loeffler is undertaking this body of work as an exploratory study to see "if indeed the methodology works well," and so far she is pleased. At the moment, she is in the content-analysis stage and is finding a variety of responses.

Some students talked about the photo being a bookmark or a reminder of what the experience was like, but not necessarily capturing the exact nature of the moment. Others talked about the disappointment of the photo and its inability to capture the multi-dimensional experience of the moment. Some talked about not taking pictures because they don't want to experience the moment through the lens or the video camera. *Cont'd on page 4*



At times, students were grasping to describe the experience in the photo. “Students were able to hold onto some parts of the experience while other parts seemed to slip through their hands.” She recalls a quote from one student: “It is the hardest thing for me, talking about the meaning or to talk about nature. People have tried to do it... to capture the real feeling when you get on the top of a mountain. It’s trying to catch the religious sense in nature. You can use words like ‘wonderful’ or ‘in awe’, but it is hard to really find the ‘poetics’ to describe nature in words. So pictures can definitely help.”

Dr. Loeffler has often found that for some, outdoor experiences are really about a spiritual connection to nature. But for others “it’s about being taken away from their normal day-to-day life and being physically removed from their regular support systems, their regular food and routines, and being placed in a novel setting which leads to being able to reflect on their lives, being able to ‘be’ in new ways, being able to experiment with yourself and face challenges, face risks.”

She also says that repetitive movements involved in activities like backpacking and kayaking can evoke meditative states, which can

also put people in “a very spiritual place. I’m trying to tie in the pragmatic, practical pieces with those more metaphysical, spiritual pieces of the outdoor experiences. It’s a very complex set of things going on and I’m trying to do my best to understand it on a deeper level.”

If this exploratory study goes well, then she hopes it can be more widely applied in other projects. “I’ve imagined sitting at the trailhead of the East Coast Trail here in Newfoundland, giving out disposable cameras, recruiting participants right there on the spot, and then scheduling an interview date.” Her idea is to help the folks who are doing the management and design of the trail to understand what it is that people are looking for when they use the trail.

Dr. Loeffler presented results of her research in February at the Coalition for Education in the Outdoors Seventh Biennial Research Symposium in Indianapolis, Indiana. She will present another set of results at the Connections and Disconnections, the International Outdoor Education Research Conference La Trobe University Bendigo, Victoria, Australia, July 6-9, 2004. ●

“When bad weather comes up, they need to be able to get to sheltered waters more quickly.”



Dag Friis and Dr. Don Bass

Stormrunners

By Michelle Osmond

For fishers making a living on the unforgiving North Atlantic, running away remains a valid means of self-protection. But now, with the help of two Memorial engineering professors, the ability of fish harvesters to stay one step ahead of bad weather could improve significantly.

Dag Friis and Dr. Don Bass have been performing vessel motion and resistance testing for a 65' catamaran design. The project is partly funded through the National Research Council's Industrial Research Assistance Program (IRAP) and the Canadian Centre for Fisheries Innovation, with the majority of funding coming from Bon Pelley Enterprises of Springdale, for whom the work is being carried out.

Bon Pelley, who has been a fisherman for more than 30 years, conceived the idea of using a high-speed, multi-hull vessel for the offshore fishery while working the stormy Northeast Coast – Funk Island Bank area. Mr. Pelley believes the catamaran has tremendous potential as a faster vessel – a ship capable of getting to and from lucrative fishing grounds twice as fast, while at the same time offering a much more stable and safe working platform. Construction of the prototype is currently underway and it is expected to be in service for the 2004 season.

“The inshore fishery fleet is now being forced further afield,” Mr. Friis said. “When bad weather comes up, they need to be able to get to sheltered waters more quickly.” Fish harvesters risk their lives to stay financially viable, he explained, because of the federal fisheries regulations limiting the length of inshore vessels. “The 65' limit on vessel length is driving the fishing industry to extremes. They're pushing their boats – fishing with all sorts of different gear, coming to

port and changing gear, trying to do processing on board, trying to cram everything into that space. The result is that you're going out in beam, down in depth and up in height, which is not necessarily a good thing.

“The rule might not have been too bad when they were close to shore but now that they're going further afield because of their quotas, it's a fishery that's much riskier. So this catamaran design is one possible way of trying to address the problem.”

Operating at a speed of at least twice that of most 65 footers (up to 20 knots), the catamaran can halve the usual 2-3 days of travel time out to the grounds – a difference which also means an improvement in product quality as Dr. Bass pointed out. “You can get the product back to port very quickly,” he explained, “and that's very important for some species, like crab, where quality is so important.”

The engineering professors are performing vessel motion and resistance testing on computer-generated models of the design, and assessing its performance capability. They need to give the boat enough capacity for storage and a properly shaped hull to move it through the water quickly and efficiently. Also collaborating on the project is Lee Hedd of Oceanic Consulting Corporation.

Mr. Pelley is very optimistic about this new design and believes it will have a very positive impact on the local fishing industry. “This is what we as engineers should be doing,” Mr. Friis said. “Being an engineer, you want to see that link between the theory that you're working with and the practical application.” ●

Lords of the flies



“I often use the analogy that parkin acts like the guy that goes into the forest and puts the red X on trees and along comes the machinery and gets rid of the damaged or dead trees”

Memorial University biologists cure Parkinson's disease in fruit flies

By Deborah Inkpen

While Memorial University biologists, Dr. Brian Staveley and Annika Haywood didn't run from their lab in St. John's yelling when they made their amazing discovery, they did have a Eureka moment thanks to the diminutive fruit fly, or *Drosophila*. Staveley and Haywood have cured Parkinson's disease in fruit flies. Their recent publication, "Parkin counteracts symptoms in a *Drosophila* model of Parkinson's disease" is the result of three years intense research using fruit flies as the subjects for their research into the operation of cells.

Parkinson's disease destroys the neurons in the part of the brain responsible for controlling the movement of muscles and affects more than 1 per cent of the population over 60 years of age. The disease results in the loss of motor control, resting tremor, the formation of neuronal inclusions and ultimately premature death.

While attending Massey University in New Zealand, grad student Haywood read a paper in *Nature* describing how Dr. Mel Feany had made a model of Parkinson's disease in fruit flies by over-expressing a gene known to be involved. "The fruit flies lost their climbing ability and neurons started to die off earlier. Other symptoms of Parkinson's disease were found as well," said Haywood. The article sparked her interest, she contacted Dr. Staveley and moved to Canada to begin work on genes that are altered in neuro-degenerative diseases like Parkinson's disease.

"In our lab we use a combination of genetics, molecular biology, bioinformatics, behavioural tests and biochemistry to figure out how life and death works at the cellular level," said Dr. Staveley. "Mostly, we are interested in genes that cause cells to survive."

While working together at Memorial, Staveley and Haywood started with a gene thought to be involved in the disease, parkin. The two then began to look for the parkin gene in fruit flies. They found the gene in the flies and proceed to make a transgenic *Drosophila* by taking the parkin gene and attaching it to another section of DNA and inserting this into *Drosophila* embryos. Then they crossed the transgenic flies with other flies and forced the expression of the parkin gene. "In Parkinson's disease, some of the genes seem to be involved

in a pathway that gets rid of unwanted or damaged proteins, so this gene parkin, a type of enzyme called ubiquitin ligase which helps to put a little tag on specific proteins and says this protein needs to be degraded and gotten rid of," said Haywood. "But if you loose the parkin gene there will be a build up of proteins."

"It seems that something that might cause a long slow death in a neuron is the build up over time of bad or damaged proteins," said Staveley. "That may be one of the processes that lead to degeneration of neurons over a long period of time."

The team then asked the question, "If you have more parkin, will you get rid of more unwanted proteins?" The flies that had too much of the alpha-synuclein protein developed Parkinson's disease, but by adding more of the parkin gene, Parkinson's disease was suppressed.

In explaining the process of ridding the cell of the alpha-synuclein protein, Haywood said, "Part of the parkin gene will grab onto the alpha-synuclein protein and the other part will grab another protein called ubiquitin conjugating enzyme, which can tag the alpha-synuclein protein with a marker." "So what parkin is really doing is mediating between the two, so the tag can be added. It is thought that the parkin gene might be attached to the 'rubbish bin' of the cell, the proteasome, and it will degrade the tagged protein. The proteins are degraded down to peptides and the tags are recycled."

"I often use the analogy that parkin acts like the guy that goes into the forest and puts the red X on trees and along comes the machinery and gets rid of the damaged or dead trees," said Staveley.

Their discovery has implications for humans suffering from the disease and Haywood and Staveley hope medical researchers will take their work and develop a model curing it in humans.

The paper is published by BioMed Central, an independent on-line publishing house for peer-reviewed biomedical research. For more information on their paper and BioMed Central visit: <http://www.biomedcentral.com/home/>. ●



Study suggests inappropriate use of medication among seniors

by Sharon Gray

Dr. Deborah Kelly



“We were particularly interested in seniors because they use such a high proportion of health care resources and they are at a high risk of running into problems with medication”

While the use of prescription drugs can maintain or improve well-being of senior citizens, the misuse or abuse of drugs, often unintentional, can intensify existing health problems or create new ones. A new collaborative study between Memorial’s School of Pharmacy and the Newfoundland and Labrador Centre for Health Information (NLCHI) benchmarks medication use across the province and estimates the extent of inappropriate medication use among seniors.

The NLCHI has a mandate to develop a provincial Health Information Network that will be the building block for the electronic health record. “There’s never been a benchmark of prescription use in the province,” explained Dr. Deborah Kelly, Pharmacy, principal investigator for the study. “Now that we have this base information, future studies can be compared to it. It will be possible to assess whether the Health Information Network makes a difference in terms of the impact on the type and appropriateness of medications being used in the province.”

The primary objective of the study, ‘Profiling Prescription Medication Utilization in Newfoundland and Labrador: Optimizing the Quality of Drug Therapy’, was to look at medication use both globally and by region, for five of the seven health board regions. The study also looked at prescription use among seniors.

“We were able to gather quite a lot of data on medication usage among those over 65 because of the seniors’ drug card that goes with the Newfoundland and Labrador prescription drug plan,” said Dr. Kelly. “We were particularly interested in seniors because

they use such a high proportion of health care resources and they are at a high risk of running into problems with medication because they often have multiple diseases, and physiologically they are more susceptible to adverse effects of medication.”

While not able to gather information on outcomes – for example, the number of times the use of an inappropriate medication results in an emergency room visit by a senior – Dr. Kelly said literature studies have identified medications that should not be used in older people based on the likelihood that they may cause adverse effects. Reports in the literature suggest that about 12 per cent of

hospital admissions and 15 to 22 per cent of emergency room visits in the elderly are medication-related.

“We found that there were about 23 per cent of seniors under the Newfoundland and Labrador prescription drug plan who received at least one inappropriate medication over a 12-month period. That was in contrast to about 16 per cent of seniors not on the drug plan receiving at least one inappropriate medication over a 12-month period.”

Dr. Kelly said that these numbers are on par with numbers reported in the literature from U.S. studies. But she cautions that there are many limitations in looking at these percentages. “Just because someone is on a medication that is on this inappropriate list, it doesn’t mean that individual is going to have problems. As well, we don’t know that person’s medical history – maybe they’ve been tried on other medications that would be considered appropriate and they didn’t respond to them or they had adverse reactions.”

Dr. Kelly said the study indicates that there might be an opportunity to improve drug use among seniors. “Because this is an estimate it would be really useful to have a more concrete idea of what the current situation is. When the Health Information Network is in place it will allow us to link prescription utilization to diagnosis information and outcomes – then we’ll have a clearer understanding of medication appropriateness.”

Pharmacists have an important role to play in improving the situation, said Dr. Kelly. “The pharmacist can talk to the patient about whether the medication is working and determine if he is experiencing any adverse effects. When a problem is identified, then the pharmacist should pick up the phone, call the physician, and have a conversation about this. It’s a matter of building partnerships.”

‘Profiling Prescription Medication Utilization in Newfoundland and Labrador: Optimizing the Quality of Drug Therapy’ will be distributed to stakeholders in the province and is available to the public at the Web site www.nlchi.nf.ca/.

Co-investigators of this study were Dr. Doreen Neville, Community Health, Melanie Healey, Newfoundland Pharmaceutical Association, Don MacDonald, NLCHI, Colleen Janes, Department of Health and Community Services, and Margot Priddle, NLCHI. ●



EDITOR'S NOTE: Some faculty members end up in the news – a lot. Over the past number of years, Memorial University has seen its share of faculty experts in the news here in Canada and around the world on topics as wide ranging as nutrition, psychology, serial murder, whales and Dracula, among other things. The latest faculty member to garner such intense international attention is Dr. Ross Klein, a professor of Social Work who has researched and written extensively on the cruise ship industry. Though his topic often draws skeptical looks, his work is a serious assessment of that industry, including the problems cruise companies encounter with regulatory agencies and with labour and environmental groups. He is now seen as an expert on the cruise ship industry, and whenever a cruise ship makes the news, media agencies like CBC-TV, CNN and Newsweek, and a whole range of newspapers worldwide, call on him for comment and/or background. To get a sense of what it's like when a faculty member gets this kind of media exposure, Memorial University's News Service (the unit responsible for promoting faculty and their work to media), recently asked Dr. Klein for his thoughts on what it's like when a faculty member makes it into the media's "golden rolodex."



Faculty in Medialand

Two things struck me in the early years of my academic career. The first was that I hadn't been taught how to teach – for most PhD's teaching is on-the-job-training. The second was that I was ill-prepared to disseminate my scholarly work beyond the academy. Sure, I knew how to write articles and had been well acquainted with the process of publishing in peer reviewed journals. But I hadn't been taught how to make my research intelligible to "real" people.

Most of my academic colleagues are probably shaking their heads and asking, "why would we be concerned about making our scholarship accessible outside the academy?" Journals are available to anyone who wants to read them. True, but I can't forget being told as a PhD student that less than eight per cent of the subscribers to a journal read any particular article. An article in a journal with 3,000 subscribers will be read by 240 other academics – if I am lucky. Is that what I can expect after many hours of excruciating and painstaking work?

Early in my career I was also confronted with the "so what" question. Not just for the dissertation, but for research grants. "Why would someone want to read this; how is it relevant?" It was drummed in that if my work didn't have relevance in the real world, the pursuit had little purpose. This experience shaped me – or scarred me. In either case, I can't help but ask, "who would want to read this and why?" A corollary is whether the work is useful and accessible to non-academics. I am fortunate, as a social scientist, to engage in scholarship that affords that opportunity.

Much of my recent work – study of the cruise industry – has teetered between the academic world with the real world. Colleagues have responded with comments like "I wish I had thought of that" or "can I come along in your suitcase?" The topic sounds more glamorous than it is. Hours upon hours doing research in archives, with dust-filled lungs, is only fun to an extent. I'd prefer to have been on a cruise ship. The work produced is a strange mix of the "academic" with "pop". The books are trade publications – a dirty word in academic parlance – and some of the articles are in mainstream, mass circulation publications; including those monthly throwaway newspapers found in any major city. But with circulations in the hundreds of thousands, they are read by "real" people. The scholarship is useful and appreciated – I receive letters of appreciation from people I've never met.

And then there is the media. I have a flashy topic and mass market visibility. What's next? Interview requests. If publishing in non-academic venues isn't bad enough, now my mug is going to be on TV, my voice on radio, and my name in the newspaper. An administrator commented, "that doesn't count...newspapers are only out to make money." At least they were being honest. Most colleagues grumble or find other ways to demonstrate their disapproval. My initial, infrequent media appearances received comment from some

colleagues. But as the visibility increased, the positive comments decreased. An appearance on the Vicki Gabereau Show got more questions of "what's she really like?" than comments about what that means for my stature as a scholar.

Being quoted in the *Globe and Mail* and the *New York Times* wasn't even acknowledged. Somehow, it is better to be lauded by a handful of like-minded academics in the ivory tower than it is to say something that impacts people's lives, effects social policy, or is (as some say sociology often is) a voyeuristic look into others lives. To be fair, I have had some support – I am fortunate to have one colleague who has consistently and sincerely been interested and who has shared my excitement with each new development. Also, the staff in my school have always shown an interest and support.

So, you ask why I, or any academic for that matter, would want to publish a trade book or appear in the media. Granted, reporters occasionally miss the nuance and precision of academic language and thought; TV uses sound bytes, often out of context; and radio, if not live, can be edited. But the simple fact is that each is a means for disseminating scholarship, to inform those who want to be informed, and with some good fortune, to have influence in the social and political arena. If we accept the notion that knowledge is power, then the knowledge we produce and make accessible through the mass media is empowering. It has an impact. Isn't that the dream of a scientist?

By now you may be criticizing me for being narcissistic. But there are other reasons for making scholarship accessible to and through the popular media. Our institution gains visibility. Potential graduate students know we exist. Policy-makers are provided intelligence they likely would not otherwise have. And alumni, legislators and parliamentarians can see that money given to the institution yields concrete benefits. I am not arguing against pure research, or that all academic researchers should be media savvy and media visible. The institution is multifaceted and satisfies many different purposes and audiences. My point is that scholarship that is popular and in the mainstream is equally as important as pure research that, though not sexy and flashy, also impacts society and people's lives. Universities, like societies, are pluralistic. We need to celebrate each other's accomplishments and share in each other's glory. When the university name is broadcast to millions of listeners or readers, it benefits us all.

Ross A. Klein is a professor in the School of Social Work. ●





Dr. Barbara Neis, co-director of SafetyNet: a Community Research Alliance for Workplace Health and Safety in Marine and Coastal Occupations and professor of sociology at Memorial University

Occupational asthma in crab plants

By Kristin Harris
SPARK Correspondent



When thinking about challenges in the crab fishery, quotas, licenses and working hours may immediately come to mind. However, a less publicized but extremely important issue is that of worker health. Dr. Barbara Neis is team leader for a major three-year study being carried out through SafetyNet. This study is focusing on occupational allergy to snow crab, a health and safety issue that is emerging as a serious problem in many crab processing plants both at home and further afield. The study is in its final year and the research findings and draft recommendations were the focus of a one-day workshop held at Memorial in October 2003. Preliminary results were also presented at SafetyNet's mid term in the article, "From Research to Practice: Partnering for Occupational Health and Safety". The findings described in this article are preliminary and have not yet been subject to peer review.

Following up on a pilot project from the early 1990s, and a workshop in 2000, SafetyNet's interdisciplinary research project is funded by the Canadian Institutes for Health Research (CIHR), the Newfoundland and Labrador Workplace Health Safety and Compensation Commission (WHSCC), and Memorial University, and supported by many community partners including the Working Group on Shellfish Asthma which includes representatives from industry, labour, government and the WHSCC. It involves an international team of researchers located throughout Canada and the United States.

There are currently 40 plants in Newfoundland and Labrador licensed to process snow crab. The labour force consists of approximately 6,000 seasonal workers. The team is conducting research in four crab-processing plants in the province, of varying ages and sizes, with different processing techniques and ventilation systems. Dr. Neis says, "we selected a variety of companies to get a snapshot of the industry, check allergen levels and discover the prevalence of the problem among their labour forces, as well as to compare the social and economic impacts of crab asthma across the different labour forces. If possible, we wanted to extrapolate from what we found in these plants to the larger industry and work force."

The first piece of the puzzle was to determine what people knew about the risks associated with working in a crab processing plant by surveying workers, management and community health professionals. Questionnaire results indicated that many workers and management personnel had a lot of concerns about the health effects of processing crab and that there were major gaps in their knowledge about occupational asthma. Surveyed health professionals, while more knowledgeable about crab asthma, were often unaware that it is a compensable occupational disease.

Next, the team took air samples and collected information on the plants ventilation systems. The results showed that two plants had particularly high allergen levels in areas where workers were manipulating cooked crab and where there was little ventilation. The

two plants with lower allergen levels had better ventilation systems, less manipulation of the cooked crab or lower production volumes. Only one of the four plants had a relatively sophisticated ventilation system. The team carried out an experiment to see if processing the crab raw and then cooking it might help reduce the allergen levels. Results were not conclusive but supported the hypothesis that raw processing would improve yields and lower allergen levels. The team plans to repeat the experiment to confirm this hypothesis.

The next step was to try to develop an estimate how many people in each plant had occupational asthma caused by snow crab. Tests on volunteers included pulmonary function, skin and blood tests, medical history, work history, and self-monitoring of breathing for two weeks prior to and after their return to work (peak expiratory flow - PEF - monitoring). Slightly less than 50 per cent of workers in the four plants participated in the study. With 215 participants, the findings indicate that 18 per cent, averaged across the four plants, had an allergy to snow crab, and that an average of 18 per cent had a diagnosis of highly probable crab asthma. Dr. Neis asserts, "it appears likely that older plants with poor ventilation that have been processing cooked crab for many years will have higher rates of allergy and occupational asthma to snow crab among workers than newer plants with good ventilation." Studies have shown that the longer affected workers are exposed to crab allergens at work, the less likely will they recover after leaving work, so that asthma may then become permanent.

The final part of the study focuses on the quality of life and social and economic impacts of asthma among affected workers, through interviews with participants diagnosed with allergy to snow crab and highly probable occupational asthma. These interviews indicate significant effects on the workers' quality of life, as well as other issues. "Workers tend to undermedicate and there is little continuity of care because of health care professional turnover. There are real issues related to diagnosis and treatment," said Dr. Neis. In addition, many people will continue to process crab in these single industry towns, for personal and financial reasons, even if their workplace is making them sick.

Dr. Neis states, "We have gone from virtually no knowledge, to good knowledge of this portion of the fish processing industry in Newfoundland and Labrador." For Dr. Neis, the research shows that prevention is critical because once people are sick their options are often limited. It has provided some insight into how to improve prevention, but this needs more work and will be examined further in the last phase of the study. "We need to do everything possible to minimize risks to workers, and provide more support around diagnosis, continuity of care and effective retraining and financial support for sensitized workers who are now too ill to work in the industry. These would be important steps forward in the prevention and reduction of occupational allergy and occupational asthma, and in reducing their negative impacts on affected workers, their families and their communities." ●

*Linguistics research impacts
Innu school system*



Dr. Marguerite MacKenzie (L), and Dr. Barbara Burnaby

“There are many dialects of the Innu language, two in Labrador and three in Quebec. Over the last 20 years there have been efforts to provide a writing system, an orthography, which will span all the dialects, so that there is now a common spelling of words in place”

Preserving the Innu language

By Deborah Inkpen

Since the time of Confederation, the services provided to Labrador's Innu have been governed provincially rather than under the federal Department of Indian Affairs. Now the two Innu communities of Natuashish and Sheshatshu are seeking reserve status in order to gain more direct control over their education system, along with other services like health care and social services.

Dr. Marguerite MacKenzie, a professor in the Department of Linguistics, has been working with Innu people to produce linguistic tools and reference documents in the Innu language, Innu-aimun, for use in a self-governed school system. "The research that I do is intimately connected with community needs," said Dr. MacKenzie.

The Innu children are currently under the Labrador School System. When they begin school they speak Innu but are expected to learn English. Ideally, the community would like to use Innu-aimun as the language of instruction, so that they learn school skills and a second language through the medium of their own language. This model has been successful in the neighbouring Cree communities in Quebec.

While aboriginal populations in Canada have the highest birth rate, MacKenzie said that Aboriginal and minority languages around the world are under serious pressure and are disappearing at an alarming rate.

"The Innu of Labrador are determined that this will not happen to their language. The diagnostic is, do the children speak the language, are they taught it at home? The Innu of Labrador are very fortunate that they have been able to maintain and teach their children the language." Dr. Barbara Burnaby, Faculty of Education, has been working with the Innu Education Authority and was appointed an external member on their advisory monitoring group. She feels Dr. MacKenzie's research is critical for the development of the Innu school system. "I wouldn't consider doing this without the kind of background work Marguerite has been doing for years from a linguistic perspective," explained Dr. Burnaby. "People in the community are very excited now about taking over control and getting the opportunity to do some things the way they think would be valuable and having more community involvement in the school system."

Documents of the written form of the Innu language exist from the time when the missionaries first arrived in Labrador in the 1600s. "The written form of language has not been used the same way as for

European languages," explained Dr. MacKenzie. "It is now considered to be a useful tool for language maintenance."

Dr. MacKenzie is currently working with Dr. Sandra Clarke, Linguistics, on revision of a lesson book in the language. They are also planning to produce a CD with sound files, to aid those wishing to learn the language. Dr. MacKenzie has also been working for a number of years on compiling a Labrador Innu dictionary to codify the spelling system; the project has been recently broadened to include combining it with the larger Quebec Innu dictionary, with English and French translations. Dr. Clarke has also written a grammar book of the Sheshatshu Innu language.

"There are many dialects of the Innu language, two in Labrador and three in Quebec. Over the last 20 years there have been efforts to provide a writing system, an orthography, which will span all the dialects, so that there is now a common spelling of words in place," said Dr. MacKenzie.

The common spelling came out of Quebec and is the result of a long series of workshops where people look at the different linguistic factors and come to a compromise on dozens of decisions. The common spelling has yet to be fully accepted in Labrador and a community workshop is planned for March 2004. Prior to the workshop a linguistics graduate student, Jennifer Thorburn, is preparing a language use survey as part of her MA thesis research.

"It is not just the things such as the dictionary that come out of this research but the results of these workshops that are important. The results include training people and giving them opportunities to see how literacy can be important to them," said Dr. Burnaby.

There is a lot of work ahead in the development of textbooks for Innu children. "Our experience with the Cree has been that training people in literacy and putting literacy in their own language in the schools is a serious economic advantage to the community, providing jobs for local people in the school and curriculum creators, etc.," said Dr. MacKenzie.

"We would like to see people realize that by becoming literate in their language they have a career path, can stay in their community, and have a sense of pride in their heritage. ●

MUNFLA: Digitizing the past

By Deborah Inkpen

Memorial's Folklore and Language Archive (MUNFLA), which contains the largest audio archive in Atlantic Canada, is undertaking several projects to digitize a number of its collections.

Founded in 1968 by Dr. Herbert Halpert, then head of the Department of Folklore, the archive is comprised of extensive collections of Newfoundland and Labrador folksongs and music, folk narratives, oral history, folk customs, beliefs and practices, childlore and descriptions of material culture. It has special collections of Newfoundland vocabulary, proverbs and riddles, and houses material for a projected linguistic atlas of the province.

It is also home to the Q67 questionnaire that was taken by roughly 1,000 Memorial students over Christmas 1967 and used as a resource for the *Dictionary of Newfoundland English* and *Family Names of the Island of Newfoundland*.

"Newfoundland and Labrador popular culture is an increasing element in MUNFLA's holdings, including commercial recordings, radio broadcasts and recordings of local theatrical performances," said Patricia Fulton, archivist at MUNFLA. "The archive is in the process of reformatting many of its collections digitally and one of the projects it is undertaking is to digitize its CBC holdings."

Ms. Fulton began work at MUNFLA 22 years ago as a graduate student assistant and continued on in various positions after finishing

her master's degree at Memorial. She said the CBC broadcast materials have grown so significantly over the years that they "really are a sub-archives" of MUNFLA.

"Most of the materials were originally gathered from the CBN station on Duckworth Street in St. John's, but some were also sent from the national archives of Canada which were dubbed from CBC transcription tapes. We have about 13,000 audio tapes that we will be reformatting digitally."

Ms. Fulton said the project was undertaken to preserve the materials and to make them more widely available to researchers. Funded by the CBC, archival assistants Paul Gruchy and John Drover are both working on the project that began in the fall of 1999, ran for two years and then was resumed in October 2003. The CBC is funding similar projects across Canada.

Another of the archive's major projects is the digitizing of a collection deposited in 1970 by the estate of MacEdward Leach, who founded the Department of Folklore at the University of Pennsylvania. As early as 1949, and throughout his career, Mr. Leach collected folksongs, ballads and instrumental folk music in Newfoundland, Nova Scotia, Jamaica and the southern mountains of the United States. In fact, he made several trips to Newfoundland, collecting more than 600 songs





(L-R) Patricia Fulton, archivist; Pauline Cox, archival assistant; Paul Gruchy, archival assistant, CBC Project; and John Drover, archival assistant, CBC Project.

and other folklore. The collection consists primarily of audio recordings and field notes made in Newfoundland, Labrador and Nova Scotia.

The project to digitize the music collection also includes the development of a Web site, co-produced by MUNFLA and the Research Centre for the Study of Music, Media, and Place (MMaP). Dr. Beverley Diamond, Canada Research Chair in traditional music/ethnomusicology, is the director of the project and the team includes Ian Brodie, Stacey MacLean, Rhiannon McKechnie, Joy Ricketts and Ayako Yoshimura.

"It's really quite an opportunity for us, on two levels," said Ian Brodie, project manager. "First of all, we are immersing ourselves in a collection that is pivotal to the history of Newfoundland and Cape Breton folksong collecting, but from which little has been published. Many people have worked on it over the years, but more for the purposes of cross-comparison with their own collections.

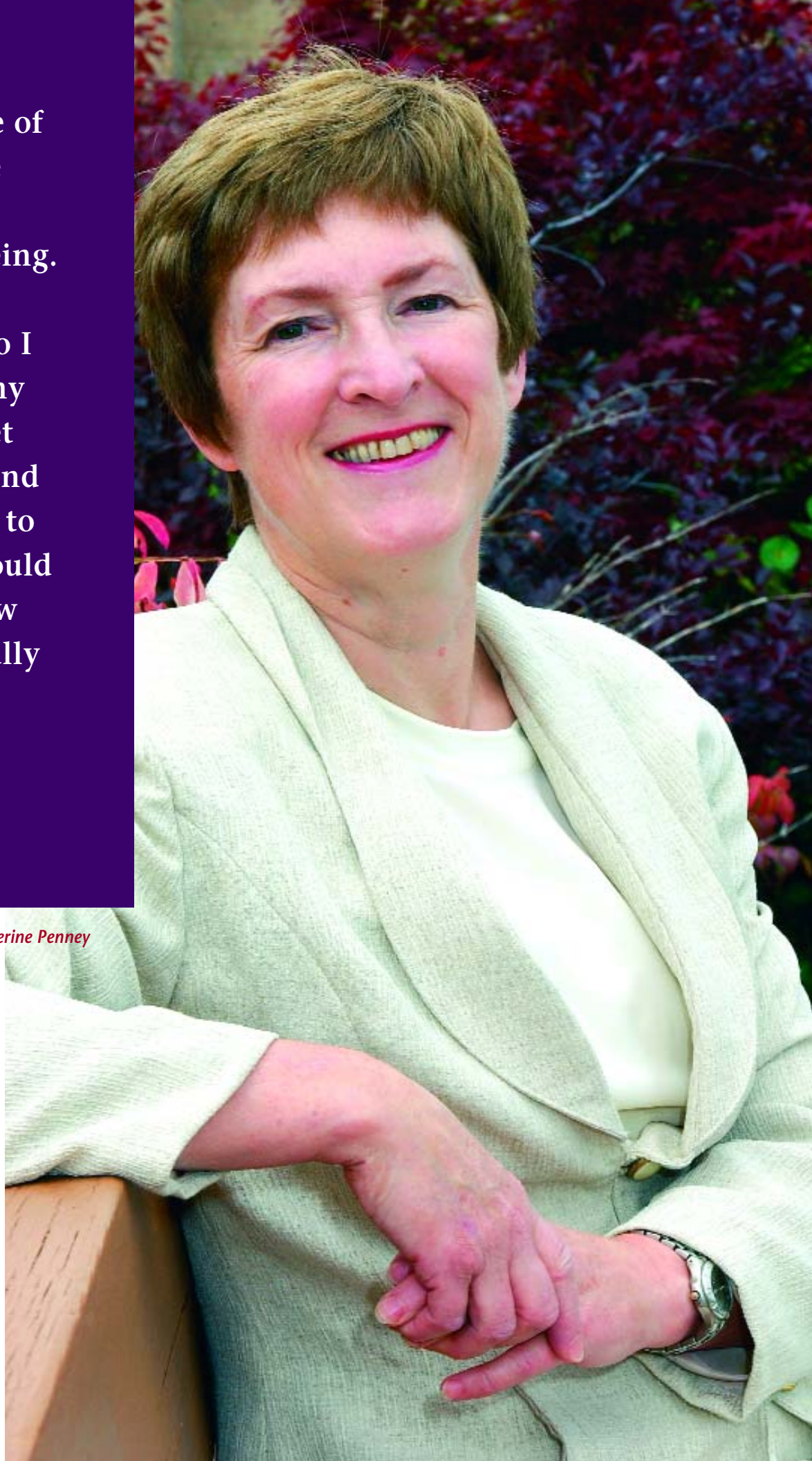
"We are attempting to study the collection in its own right, trying to capture Leach's experience. On the other hand, the creation of a Web site is a new form of publication, and we have to contend with creating a site that is accessible to the broadest number of people." The work involves struggling with technical parameters (providing clear pictures and sound files with as low a bit rate as possible) and pedagogical parameters (giving explanations that are accessible to an upper-elementary level student but relevant for university students and professional researchers).

"It's a balancing act, and we have four months to do it."

Ms. Fulton said archives are an invaluable resource for researchers, often yielding unexpected treasures. "The digital projects underway at MUNFLA will facilitate access to this wealth of material and that is a very satisfying prospect." •

“We had a couple of pilot kids and we couldn’t believe what we were seeing. I said, I’ve got to document this. So I spent a good many years trying to get kids to stick around long enough and to find tests that would measure and show that we could really improve their reading.”

Dr. Catherine Penney



A new teaching method for slow learners helps prevent future adult illiteracy

By Lisa Hoffe

A member of Memorial University's Psychology Department has developed a method to teach reading that allows educators to reach through the cracks to rescue kids who may otherwise end up illiterate.

Dr. Catherine Penney has been working on perfecting this method since a pilot study with dyslexic children in 1993. Now, after years of testing the program, she is so confident it can teach all children to read and spell, that she's working on ways to introduce it to English school children everywhere.

THE PROBLEM

According to Dr. Penney, 35 to 40 per cent of Canadians are functionally illiterate. They are unable to read and understand the local newspaper or a magazine. Other than those with serious language impairments, the majority of the functionally illiterate are dyslexic. The problem lies in early language development. "But," she says, "with the right teaching method, many of the reading deficiencies can be averted in the early years of school."

Dyslexia is a reading and spelling disorder. Those who suffer from it have trouble learning letter names and difficulties distinguishing between names of visually confusable letters such as b and d, w and m, and x and k, among other combinations.

Dyslexics also have trouble retrieving the sounds of speech, or finding the right word or parts of words at the right time. In an activity using opposites, Dr. Penney noted that a child shown the word above guessed at its opposite saying 'not above' instead of saying the word 'below'. She says that even though the child knew the word 'below', he couldn't retrieve it when asked.

Dyslexia can be very mild, for example, when a child is a bad speller but doesn't have any other obvious problems.

Or it can be a major problem when a child isn't speaking clearly and can't make 'ch' or 'r' sounds. A child with speech problems nearly always has difficulty learning to read and spell.

Many children diagnosed with dyslexia are often termed "reading disabled" and by grade three it's generally assumed they are unable to learn. She says for most dyslexics, that's nonsense; the standard teaching method for reading and writing is failing the child and not the other way around. They may not be great spellers but, according to Dr. Penney, they can be functionally literate.

PENNEY'S METHOD

Her method teaches the child to focus on the letters and their sequence by having the child spell the word. She also teaches the sound of parts of the word and how to associate the letters with the corresponding sound. It's an adaptation from a method called the Glass Analysis, developed originally by Gerard Glass.

She teaches letter patterns inside the words instead of the 'whole word', the method that is typically used to teach reading. The whole-word method teaches the pronunciation of the printed word without going through the step of teaching the associated sound. Phonics, an alternative method to teach reading, explicitly teaches the letters for individual sounds by having children break words into their sounds. Phonics methods introduce the child to groups of words that contain the target sound, such as 'cape', 'take' and 'late', all words that have the long 'a' sound.

By contrast, in Dr. Penney's method the long 'a' sound would be taught using groups of words with similar letter combinations, such as groups of words with the 'ape' letter set ('cape' and 'tape'), leaving other words, such as 'ake' and 'ate', for a lesson using words with that spelling combination. *Cont'd on page 20*

"I'm using rhyme units, which, have a vowel followed by one or more consonants, and teaching the children how to pronounce, spell and read these patterns. When they then see a word they've never seen before, they look for the vowel sounds and the consonants that follow the vowel sounds and then they can sound out the word. These activities develop word attack skills, which are absolutely essential for learning to read new words."

Dr. Penney says her method offers a new approach for dyslexic children who might otherwise flounder with the other two methods. "We are tapping into a psychological mechanism with this method that hasn't been tapped into before," she says. "It's this ability to break the syllable into onset and rhyme that seems to be a fundamental skill."

A FLUKE DISCOVERY

She describes finding this method 'a fluke' while working on another project with Dr. Barbara Hopkins, director of the former Diagnostic and Remedial unit of the Faculty of Education.

Dr. Hopkins, who worked with children with dyslexia or other learning disabilities, introduced her to the Glass Analysis method to teach reading and spelling. "We had a couple of pilot kids and we couldn't believe what we were seeing. I said, 'I've got to document this.' So I spent a good many years trying to get kids to stick around long enough and to find tests that would measure and show that we could really improve their reading."

RESULTS OF PENNEY'S METHOD

Since then she has worked with about 200 children and has seen strong evidence to support the method. "I can see that it works and it's very clear that it works...We can improve the reading and spelling of dyslexic school children, where special accommodations had been put in place for them because it was thought they had stopped progressing in their reading ability. We can get many of those children to a level where they can read books. They can read for pleasure."

She claims that dyslexic students who have poor reading and spelling skills can be improved to the level where they can read *The Hardy Boys* or *Harry Potter*.

Based on her success, she has taken a method created for teaching dyslexic children and developed an effective method to teach all children. "It is conceptually different from the ways that people now teach reading. I met someone who knew this method, and he said, 'Well that's the way I learned to read. Isn't that how everybody learns to read?' And the answer is no. This is not a method that is widely taught."

TEACHING METHOD GOES MULTIMEDIA

Dr. Penney is now focussed on making the method more widely available for all children learning to read and spell. "What I'm trying to do now is to develop computerized lessons for first-grade children using animated cartoon characters with a story to go along with

them." Each lesson will tell a simple story and teach all the words that the child needs to read the story. The story will be illustrated with pictures and animation."

The program will be designed for the average first-grade student who is beginning to read, or the advanced kindergarten student. However, it is also designed for the Grade 2 or Grade 3 child who is having difficulty. "Students who are dyslexic will work through the same program, but it may take them longer and they may have to start with an introductory program and then catch up to the program in Grade 2."

Not wanting to start a computer business from scratch, she is working in partnership with Innova Multimedia, a company that develops educational software and has several products already on the market. Innova, a Newfoundland company based in Stephenville, was started by Joe Wiseman and John Maddock, both retired teachers, and Bill Maddock, an former employee of x-wave. They began with business assistance provided by the Genesis program. Innova's pre-existing routine for writing teaching lessons, and an established network of customers made the fit attractive.

As for the outcome of the project, Dr. Penney has little doubt that this new way to teach the method will offer the same success that it has in the past.

"If this program teaches children to read as well as I think it's going to, we could have probably 90 per cent of children really reading by the end of Grade 1... By the end of Grade 3 we should only have 2 or 3 per cent who are less than functionally illiterate. Whereas we now have people graduating from high school and entering university who are not functionally literate. They're asking for extra time in exams because they are slow readers and requesting the use of spellcheckers because they're such awful spellers. I think this is abysmal."

As for the future of the software that Dr. Penney is developing, she thinks it has widespread potential. "I think this should be marketed world-wide in the English-speaking world. In other alphabetic languages like French, German and Russian, for example, a modification of this method should be useable."

Once the beginning reader program is established for school children, she plans to use the same method to develop a program to improve the literacy skills of adult poor readers. The same program could also work for poor readers in high schools.

"It's very exciting. There are commercial applications for this research, which is a totally new area for me. I'm an ivory tower academic, I'm not a business person", she laughs, "but I'm becoming one." ●

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Policy centre to study fixed link

By Deborah Inkpen

Memorial's Public Policy Research Centre will conduct an independent examination of the economic and technical implications and viability of constructing a fixed link across the Strait of Belle Isle between Labrador and the Island of Newfoundland. The federal government, through the Atlantic Canada Opportunities Agency (ACOA), will partner with the province to fund the study.

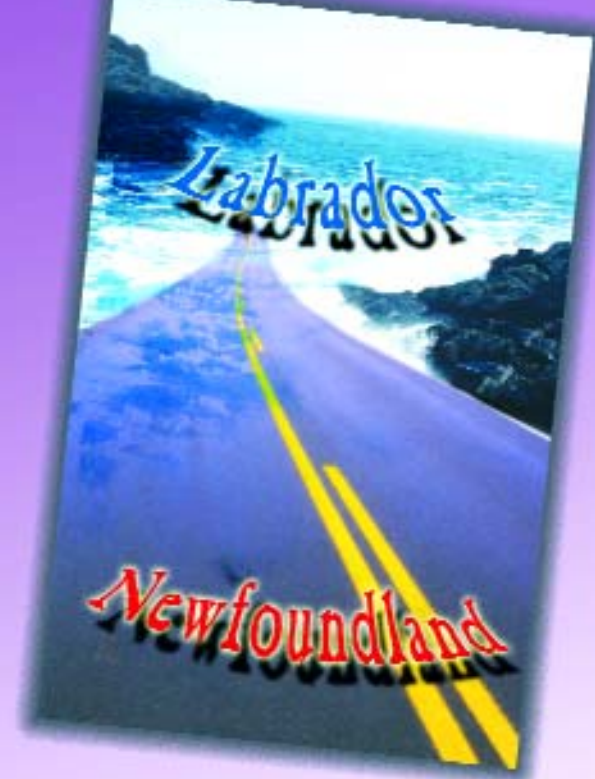
"The pre-feasibility study will look at a number of existing data and in particular the engineering information that's been compiled up to this point in time," said David Vardy, interim director of the centre. "It will review previous studies and it will assemble all of the geo-technical data that are available, both within Hydro Newfoundland, within government and within university circles.

"The difference between a full feasibility study and a pre-feasibility study is that it relates to the level of precision and uncertainty of the estimates."

The pre-feasibility study will provide the basis for government to take informed decisions as to what the next step should be. That would include a recommendation.

"The role of the policy centre will be to oversee and manage the project with the help of a steering committee, which includes federal and provincial officials," he said. "The policy centre will be calling for proposals from companies and individuals who wish to undertake the work."

"Newfoundland and Labrador is the only province in Canada that does not have a continuous highway or railway linking it to North American markets," said Premier Danny Williams. "The two major



geographic and resource regions within the province – Labrador and the Island of Newfoundland are virtually inaccessible to each other, leaving exporters and importers constantly challenged by sea and air links. This seriously impedes economic growth potential and opportunities for the province.

The centre will consider various fixed link configurations (e.g., causeway, tunnel, bridge) and possible locations within the Strait of Belle Isle; estimate their technical feasibility; conduct a business case analysis considering capital and operating costs, revenues, projected annual cash flows and utilization levels; produce a sectoral analysis of the economic, social and environmental implications of the project; and review the literature on related fixed link projects around the world.

Mr. Vardy said there will be a preliminary analysis of the environmental impacts. "It won't be as rigorous as it would be in a full feasibility study. There won't be the same kind of consultation process as it would be in an environmental, a full environmental impact study," he said. "But it will be a preliminary review of all of the data and the likely impacts on the environment."

The principal emphasis of this project is on the transportation of people and goods but it will also take into consideration the various roles a fixed link could perform. This might include a high voltage direct current (HVDC) cable within the fixed link. Such a cable would allow for an in-feed of power transfer from the lower Churchill Hydro-Electric Project. The study should be completed by June/July 2004. With a total cost of \$351,674, THE Atlantic Canada Opportunities Agency (ACOA) contributing \$281,339 and \$70,335 coming from the province. ●



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