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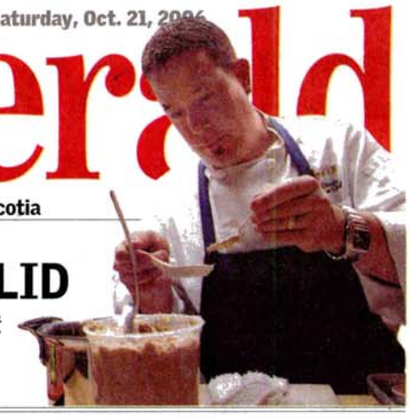
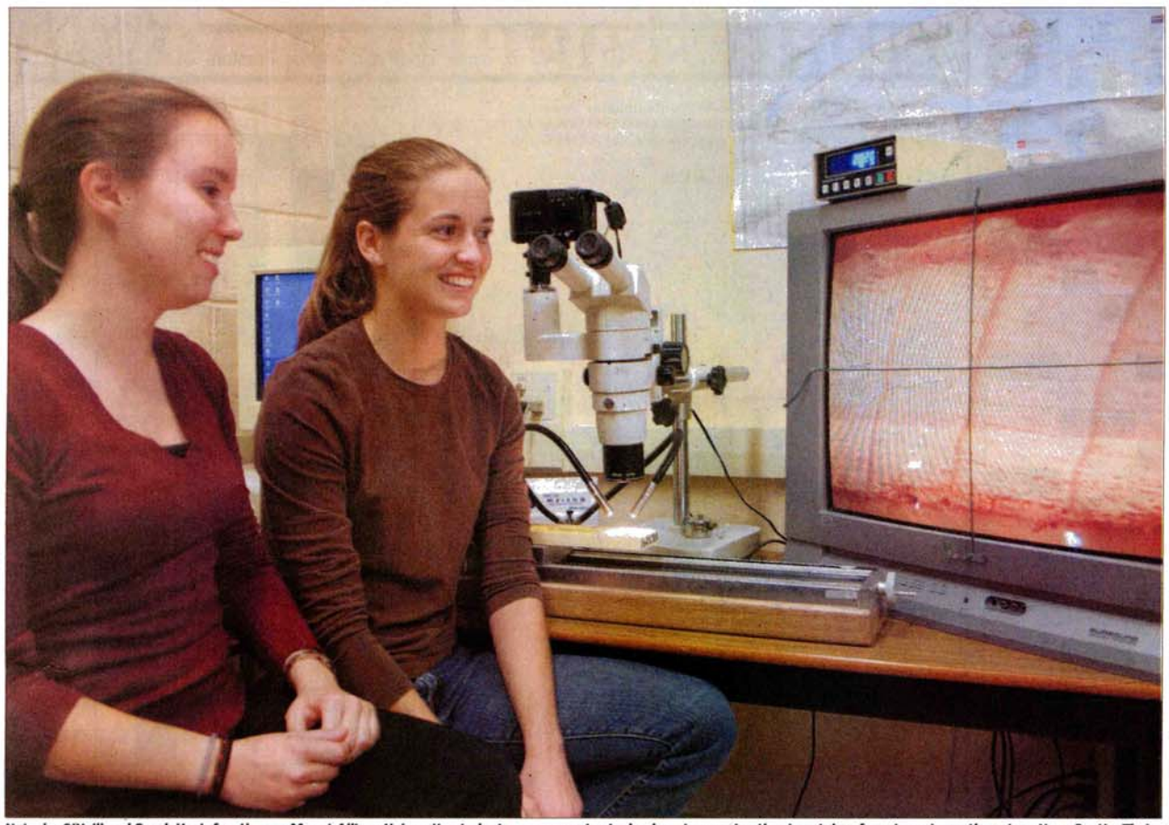
FREE MAN
High-risk sex offender moves home to Ingonish. / B1

LIFTING THE LID
Alberta to make restaurant inspections public. / A3





Natasha O'Neill and Sarah Hart, fourth-year Mount Allison University students, use computer technology to examine the rings taken from trees in southwestern Nova Scotia. Their respective research projects could help determine Nova Scotia's future weather by shedding light on the province's past environment. *(TOM MCCOAG / Amherst Bureau)*

Tree ring research may predict climate

Mount A students analyze old growth forests, old building beams, using history to foretell future weather

By **TOM McCOAG**
Amherst Bureau

SACKVILLE — What do Nova Scotia's oldest living trees, beams from century-old churches and our future weather have in common?

"That's a huge question, but the answer is plenty and the answer to it is being partly answered by the work being carried out by this pair," Colin Laroque, an assistant professor from Mount Allison University's geography department, said recently.

He points to two students who are counting tree rings with the aid of a television set that is connected to a microscope. They are Sarah Hart, a 21-year-old environmental science student from Haddon Heights, N.J., and Natasha O'Neill, another 21-year-old environmental science student from Bright's Grove, Ont.

Ms. Hart spent last summer walking through old growth forests in southwestern Nova Scotia in hopes of finding the oldest living trees available. She paid particular attention to six species: white pine, red spruce, balsam fir, eastern cedar, eastern hemlock and larch. She selected coniferous trees because their rings are a lot easier to see.

"A lot of people think bigger means older, but that isn't true," she said. "Even some of the forests that people thought were old growth forests weren't as old as people thought."

When she found an older tree, she took a core sample using a tool that looks much like a corkscrew. "I took two samples from each tree and took them from about 300 trees from a variety of areas in south western Nova Scotia."

She brought the cores back to a university lab and has been spending much of the fall counting the rings and recording the ages and growth patterns of the trees. The oldest trees she found were a 287-year-old white pine, a red spruce that is 204 years old, an eastern hemlock that is 237, a 157-year-old balsam fir, an eastern cedar that is 132 and a Larch that is 118.

As she was busy dating trees, Ms. O'Neill was climbing through the rafters of century-old buildings, mostly churches, in the same area of Nova Scotia. Using the same tool, she took core samples from beams found in century-old buildings.

Like Ms. Hart, she took the samples back to the lab and has spent much of the fall counting the rings and recording the age and growth patterns of the trees.

'We've only kept those records for about 100 years. Studying the ages and growth patterns of these different trees can tell us what the weather was like.

COLIN LAROQUE
Assistant professor of geography, Mount Allison University

"My work is definitely related to Sarah's but I'm looking at trees that are even older than the trees she is looking at. Between the two of us we're looking at data that goes back 300 to 400 years."

While all of the data from the two projects has not been fully analyzed, it has revealed some interesting findings, such as how even some of Nova Scotia's oldest living forests have been affected by logging. It has also helped identify when some of the churches were actually built.

As an example, Ms. O'Neill points to St. Anne's Catholic Church on the Bear River First Nation. People there knew the church was old, but had no record of when it was built. Ms. O'Neill's research has been able to pinpoint its construction to 1821, give or take a couple of years.

However, the most important aspect of the data is that it shows what the province's environment was like in an era long before weather records were kept.

"We've only kept those records for about 100 years. Studying the ages and growth patterns of these different trees can tell us what the weather was like. For instance, it seems to be showing us that Nova Scotia's climate is affected greatly by the ocean in that it has a moderating effect. The province never seems to be as dry, as hot or as cold as other regions," Mr. Laroque said.

Knowing what that weather was like in the past is extremely important, especially for scientists who are attempting to predict future weather patterns. To predict those patterns, these scientists create computerized models, but these models are only as good as the data pumped into them.

"If a model can demonstrate accurately what we know to be true in the past because of the information we've gathered about the environment from these trees, then what it predicts for the future should be accurate," Mr. Laroque said. "It only goes to say that the more information you have about the past, the more likely (that) the model will be able to accurately predict the future," he added.

And just what will that future be like? The answer, the three say, will have to wait until all of the data they collected last summer has been analyzed.

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