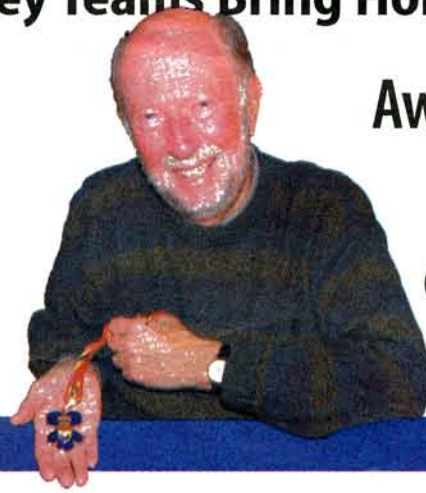


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## Creating snapshots in time: the lure of dendrochronology



**Tantramar Flashback**  
Bill Hamilton

Before readers start reaching for their dictionaries, let me define dendrochronology. Simply put, it's a method of scientific dating based on the study of annual growth rings in trees. The technique was refined in the early 20th century by A. E. Douglass, the founder of a laboratory for tree-ring research at the University of Arizona.

One result of his investigation of tree-rings in preserved timbers from archaeological excavations was the coining of the term dendrochronology. It's based on "dendro," the Greek word for trees.

There are two major aspects to this comparatively recent discipline. One is the dating of historical objects ranging from the oldest trees to rafters and beams in ancient buildings. Since tree rings also provide a diary of weather patterns, the second concentrates on the study of past climate changes.

With the current interest in historical dating and environmental studies, the evidence being uncovered through dendrochronology is of the utmost importance.

The door to a lower level room in the Avarad Dixon Building on the Mount Allison campus bears an intriguing abbreviation "MAD." Standing for the Mount Allison Dendrochronology Laboratory, it has the distinction of being the only such facility in Atlantic Canada.

Its presence at Mount Allison is closely entwined with the career of Colin Laroque. Appointed an assistant professor in the department of geography three years ago, Laroque holds degrees from the University of Saskatchewan (B.Sc. 1993) and the University of Victoria (M.Sc. 1995 and Ph.D. 2002).

During a recent interview, Laroque mentioned that while undertaking graduate studies at U. Vic. his advisor was Daniel J. Smith. A pioneer in Canadian dendrochronology, Smith was the founder of U. Vic's tree-ring laboratory. Anchored on Canada's west coast, the latter is in the process of collecting samples that will, in Smith's words, "eventually

create a tree-ring chronology covering thousands of years.

A continent away, on Canada's east coast, the MAD Laboratory, under his former student's direction, "was established to investigate tree-ring related research questions in Atlantic Canada. The first priority... [will be] to create tree-ring chronologies in this region."

Not surprisingly, Laroque was quick to compliment his mentor Smith. "I continue to work closely with him," he explained; "Dr. Smith was instrumental in my development as an academic."

In fulfilling MAD's mandate, Laroque and his enthusiastic band of students have already solved several historical and scientific riddles within the region. This was achieved through rigorous field research and the utilization of modern computer technology.

Ben Phillips, a fourth-year Mount Allison student, explained the basic process: "Once a tree [or other wood source] has been identified, a small core thinner than a pencil is extracted using an auger. In the lab it is mounted, sanded and polished to reveal all of the rings. The members of the lab team then count the rings using a scanner." In some instances, cross sections of a tree or beam may be used.

Following the interview, Laroque led me on a tour of the MAD Laboratory. There I met André Robichaud, a post doctoral research associate with MAD, along with Ben Phillips mentioned above. [See photograph] Reference to a few projects will serve to explain some of MAD's recent "snapshots in time."

One involved dating historic Sinclair Inn in Annapolis Royal, N.S. As Laroque pointed out: "This example illustrates a multi-disciplinary assignment, one that combined scientific research with an examination of the historical record... It is also important that all members of Dr. Robichaud's class were involved in the project."

The assignment arose from a request by the Annapolis Heritage Society to authenticate dates for the origin of the inn. Work started with the gathering of tree-ring samples from timbers in two buildings that had been joined together. Comparative data was collected from nearby Christ Church in Karsdale, known to have been built in 1790-01.

Just over a month later, Mount Allison students Ben Phillips and Amanda Colford were able to assure members of the Annapolis Heritage Society that the dates they had been using were correct. The MAD Lab analysis showed that one house was built between 1709 and 1711, and the date for the other fell between 1708 and 1709. The two were joined in 1779-80.

A discovery that propelled the MAD Lab into the headlines took place in the summer of 2005. Ben Phillips was carrying out a research project on climate change in the forests of the Fundy Basin. During his investigations, he uncovered what



Taking a break in the MAD Lab are, left to right, André Robichaud, Ben Phillips and Colin Laroque.

turned out to be a rare red spruce tree. It started growing in 1560.

To place this breakthrough in perspective, Queen Elizabeth I was then on the throne of England and Port Royal had yet to be founded. Phillip's discovery was to make the record books as the oldest red spruce tree in the world. Previously a specimen in New Hampshire dating back to c.1601 had held this record.

Laroque was understandably pleased with this "Eureka" moment. "We were hoping that Ben's search might produce a tree up to 300 years old. This would have been impressive, but we never dreamed he'd find a 400-year-old tree."

This week on Dec. 3., Phillip's discovery, entitled *The Oldest Tree*, was featured on the popular CBC program Land and Sea.

The MAD Laboratory has also been successful in dating Sackville's Campbell Carriage Factory and a section of the Boultenhouse Heritage Centre.

In the first example, historical records provided conflicting evidence as to when the factory was built. A student Nigel Selig who worked on the project, explained in a press story the steps that were followed.

"A scanning electron microscope revealed that the factory was built of red spruce. Since there were no existing trees to provide comparative data, samples were taken from a church in Barachois N.B. A graph was compiled and very quickly we were able to lock in 1844 as the date in time."

In the case of the Boultenhouse Heritage Centre, the date (1840) of the main house facing Queen's Road was not in doubt. The attached building at the rear was another matter. Was it, as seemed to be the case, older than the main house?

Proof was to be provided by Laroque and Robichaud "who cored, measured and crossdated" wood samples to confirm 1792 as the date of origin. This verification is of considerable significance, as the structure may well be the oldest building in the town of Sackville.

Many MAD Lab projects are undertaken during the summer break. Students are funded through a variety of internal and external sources. So far, their projects have ranged all the way from Jasper National Park to Fundy National Park, and from the peat bogs of eastern New Brunswick, to climatic changes in the forests of southwestern Nova Scotia.

Later, I discussed the future of den-

drochronology at Mount Allison with Michael Fox, head of the department of geography. His enthusiasm and support for what has been achieved was readily apparent. Stressing the point that the research covers several disciplines, he is hopeful that before too long an interdisciplinary B.Sc. degree may become a reality at Mount Allison.

Regrettably I've highlighted but a small number of the varied projects undertaken by the MAD Lab. In my selection, the concentration has been on historical examples. It will require a future column to focus attention on other areas of research. Meanwhile, there is an excellent website [www.mta.ca/madlab](http://www.mta.ca/madlab) for those who may wish to explore additional projects.

One question remains. How may an interest in dendrochronology on the part of so many students be explained? What is the "lure" of the subject? Let's go back to a comment made by Laroque: "It makes you a detective of history... you are finding a place in the mental map of time." Added to this, there is the genuine satisfaction to be found in tracking down answers to relevant questions.

Fox emphasized a further asset by noting: "The research in dendrochronology is providing a new and exciting dimension to undergraduate education." He was referring to the several Mount A students who have already presented papers to prestigious organizations such as the Atlantic Geoscience Society and the Royal Canadian Geographical Society (RCGS). Normally only those at the masters or doctoral level qualify for such honours.

On Nov. 2-3, Laroque accompanied Ben Phillips to the annual meeting of the RCGS in Ottawa. Phillips was invited to address the gathering regarding his research. How many undergraduates have had such an opportunity?

There is yet another factor in explaining the "lure" of dendrochronology. It points directly to a professor with excellent qualifications and boundless enthusiasm for his field of study. His interest in students and their research was obvious from the very beginning of the interview. The MAD Laboratory is truly "entwined" with the career of Colin Laroque.

Ideas for, or comments about Tantramar Flashback, may be addressed to Bill Hamilton in c/o the Sackville Tribune Post, 80 Main Street, Sackville, NB, E4L 4A7, or via e-mail at: [tribune@nbnet.nb.ca](mailto:tribune@nbnet.nb.ca)

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