

Keeping her hands dry

BY ANDREW PICKETT

Considering her field is chemistry, it's a bit surprising that Stacey Wetmore, a second-year graduate student from Saint John's New Brunswick, hasn't so much as lifted a test tube in pursuit of her research. But Wetmore says she actually prefers to avoid "wet lab" work. As a theoretical chemist, she spends most of her day in front of a computer. In fact, thanks to the use of a modem, that's often how she spends her evenings at home.

Wetmore works with Dr. Russell Boyd on the third floor of the Chemistry building. Boyd's lab isn't like other chemistry research labs. The door has a sign saying, "KEEP CLOSED FOR AIR CONDITIONING." The interior looks like a medium-sized office: it has bookshelves, desks, a small fridge and a coffee machine. Oh, yes, and computers. Quite a few of them, in fact. As a result, the Boyd lab can accomplish a great deal using data obtained and published by other researchers in their "wet labs" — without the need to perform experiments themselves with real chemicals.

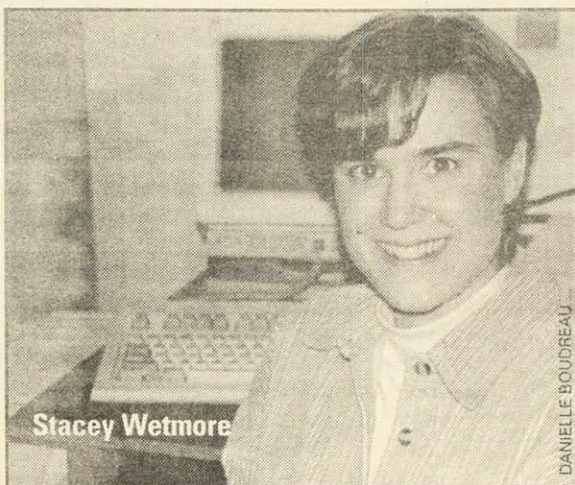
Wetmore makes some introductions. "This is Erwin," she says, gesturing at a researcher seated at one of the computers. It takes me a moment to realize she's referring to the computer, not to her colleague.

"It's a RISC 6000/580 we purchased about five years ago. It'll need replacing soon," Wetmore adds. The Boyd lab is funded almost entirely by NSERC, the federal agency responsible for supporting basic sciences and engineering. It will take a grant from NSERC to purchase new equipment and keep the lab up-to-date and competitive.

"That's Maria," Wetmore says, indicating another machine.

Erwin and Maria are being

used by Wetmore on a project to predict the location of unpaired electrons in peroxy radicals, which are important in cell damage, aging, and mutation. In addition to her thesis work, she is completing a total of six graduate



courses, as well as working as a teaching assistant in the undergraduate labs. Wetmore is currently in the process of switching from a MSc to Ph.D program. This is a not uncommon course of action for science graduate students — doing the two degrees separately can take as much as two years longer, and she already knows she wants a doctorate.

"I don't want to work in industry, but I very much enjoy teaching and research," Wetmore explains. "Thus academics would be the ideal job for me — and of course you need a Ph.D. in order to get a position at a university."

Does the chemist miss doing chemical experiments at the bench? "I don't like wet lab work much," she admits. "This morning I was doing some teaching assistant work and I had to teach myself to titrate [balance an acid and a base] again — it's been three years."

I ask her if she's hungry, offering her the doughnut I've brought as thanks for her time. She isn't. And no wonder, because Wetmore holds not one, but two external full graduate scholarships — an NSERC and a Killam — as well as being paid for teaching. That's enough to pay tuition and living expenses, with even a little left over. There is a downside

to such luxuries, though.

"People's expectations are pretty high," says Wetmore. "Ask a professor how many hours a graduate student should put in every week, and, well, the number 60 gets tossed out."

I ask her about extra-curricular activities. "You *have* to make time for that," she warns. "The gym is good — you know, to let off a little steam. And I try to spend some time with my friends."

What's the most exciting event in Wetmore's research career so far? "I don't want people to think being a Chemistry grad student is all glamour or anything," she answers, "but I did get to spend five weeks overseas, and I had a wonderful time." Wetmore participated in an exchange with a lab in Sweden belonging to Dr. Leif Eriksson, a former post-doc of Boyd's.

"This lab has collaborations all over the world," says Wetmore. "It's the only facility of its kind in the province — scientists from the other local universities come to use our equipment." I can believe that — on the way out I notice a bulletin board by the door almost completely covered in postcards, the mark of a lab with global connections.

As I leave, I close the door. After all, Erwin and Maria have to stay cool.

IS2 server gets a facelift

BY DANIEL CLARK

Dalhousie's student Internet account server, IS2, has just received a major upgrade from University Computer and Information Services.

IS2 was purchased last year to allow the 12,000 eligible students to have their own server separate from the faculty who remain on the old IS system.

The system purchased last year was a Sun Microsystems RS6000/F30, which is about twice as powerful as the RS6000/390 that runs IS. But despite the increased power it still was not enough to accommodate the Dalhousie student population, and a new system had to be purchased.

"The IS2 (F30) ran out of CPU power at about 140 logged in users," comments Aiden Evans, Assistant Director of Computer Facilities and Operations at Dalhousie. "During November, between prime using hours (9 a.m.-5 p.m.), that level was exceeded about half the time."

Evans likens it to the number of people waiting in line for a bank teller: the more people there are, the slower the service is. That is, the higher the load average of

the system, the worse the system performs.

On Sunday, January 12, 1997, the new IS2 server came on-line. It is a Sun Microsystems RS6000/J40. It uses four 112 Megahertz (MHz) PowerPc 604 processors (compared to one 133 MHz in the F30), 512 megabytes of RAM (compared to 416 Mb), and four 4.5 gigabyte hard drives (compared to three).

On the J40's first weekday it recorded a maximum of 237 logged-on users. During the day, more than 200 users were logged forty-two times.

Evans attributes these high numbers of service to the new system.

"Before, people might have logged on, done their work, and logged off because the system was too slow," he says. "With the upgrade they are staying on longer because the frustration factor is not there."

There are currently 13,800 student usernames on IS2, although only 9,800 of them are currently enabled. The rest were disabled because their student owners are no longer registered.

Randy Barkhouse, Director of Academic Computing at Dalhou-

sie, says, "An unknown factor will be the load that TUNS students will place on IS2 in the future. It should be equal to about half of the Faculty of Science load."

Evans estimates that the IS2 system should be able to handle as many as 300 simultaneously logged-in users, or about 50% more work than it is currently doing. He also cautions that just because we can do it, it does not necessarily mean that we should.

Another benefit of the new server is the better service in viewing Web Pages located on IS2.

"The response time for web page requests should have [also] improved since the upgrade," says Evans. "However, having web pages on IS2 has a minimal effect on overall response time. The web server uses less than one percent of the total CPU time consumed by all processors."

"With the J40's demonstrated capacity," says Barkhouse, "my hope is that UCIS (University Computer and Information Services) can satisfactorily serve students with IS2 for at least the next couple of years."

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