

MOVERS

Louise Ryan, chief, mathematical and information sciences, Commonwealth Scientific and Industrial Research Organisation, Sydney, Australia



2006-09: Chair, Department of Biostatistics, Harvard School of Public Health, Boston, Massachusetts

1985-2009: Assistant to full professor, Department of Biostatistics, Harvard School of Public Health, Boston, Massachusetts

Louise Ryan's humanitarian spirit resides in the mind of a mathematician. After recognizing her affinity for solving real-world problems, Ryan carved a path as a biostatistician assessing environmental risks to human health. As she returns to her native Australia to head the maths and information-sciences division for the Commonwealth Scientific and Industrial Research Organisation, she plans to create opportunities for like-minded students.

As an undergraduate, Ryan began actuarial studies at Macquarie University in Sydney, Australia. She lost interest in the financial focus at the same time that she became captivated by statistics. "The real world is chaotic, and I loved coming up with simple formulae able to reveal the complexity of randomness," she says.

Ryan's undergraduate adviser, Don McNeil, encouraged her to pursue a PhD in the United States. At Harvard University, Ryan developed diagnostic techniques to determine which statistical models are most appropriate for specific data sets, but this focus was too theoretical to sustain her interest. Through McNeil, she met members of Harvard's biostatistics department and began a postdoc with Stephen Lagakos, who was working to quantify cancer risks of red dye 40, a food-colouring agent. At the same time, she worked on statistical underpinnings of clinical-trial design at the nearby Dana-Farber Cancer Institute.

Ryan's reputation for conducting quality environmental risk-assessments got her a seat on the National Academy of Sciences (NAS) panel on arsenic in drinking water, where she used her statistical expertise to quantify the effects associated with models' uncertainty. She used similar techniques to help a NAS panel advise on methylmercury. "Louise cares deeply about making the world a better place," says Lagakos.

While at Harvard, Ryan headed student programmes, including one that gave minority students opportunities in biostatistics. After directing an environmental statistics programme, she went on to chair the biostatistics department. She remains an adjunct professor at Harvard.

Her main goal now is stimulating top-notch statistics research opportunities in Australia. Already, she has started a graduate fellows programme to attract talented undergraduates who want work experience on the way to a PhD — a missing link in Australia's maths career pipeline. "I want to make this division a magnet for the best talent," Ryan says.

Virginia Gewin

NETWORKS & SUPPORT

A bill to care for carers

Many scientists, especially women, are familiar with the disruption to their career and funding that can occur as a result of extended family leave. To address this and the discrimination that sometimes results, Congresswoman Eddie Bernice Johnson (Democrat, Texas) has introduced a bill seeking grant extensions for federally funded scientists who take time off to care for family members. Funding agencies would also provide money to hire temporary workers.

Johnson based the bill on recommendations in the 2007 National Academies report *Beyond Bias and Barriers*. This is her second attempt; last year's bill died in committee. With the new US administration, she says, "I think we might be trying at a better time now".

The bill calls for workshops to educate university leaders, grant reviewers and other federally funded researchers about how to reduce gender bias. Some universities have balked at the suggested workshops' time-consuming data-collection requirements, which include monitoring the careers of female faculty members from workshop participants' departments.

Many institutions have not compiled such data before, says Joan

Herbers, a biologist at Ohio State University in Columbus on a National Science Foundation grant aimed at boosting participation of women in science and engineering.

Some agencies, including the National Institutes of Health, already extend grants while investigators are caring for family. Provisions for temporary workers, however, would be new, says Mary Ann Mason, co-director of the Center on Health, Economic and Family Security at the University of California, Berkeley. Although researchers on multi-year grants cannot be easily replaced, Mason says hiring a temporary worker may help in some cases, and could limit concerns about hiring women of child-bearing age. "It's not an easy fix by any means," she says. "But it's a necessary policy."

The bill's provisions are not limited to women. Men are increasingly requesting paternity leave, notes Phoebe Leboy, president of the Association for Women in Science. "The best thing that can happen for women in science," she says, "is for men in science to have similar responsibilities and a better understanding of what the problems are." Johnson hopes for action this congressional session.

Heidi Ledford

POSTDOC JOURNAL

As simple as possible

Sitting in an empty lab, surrounded by a dark campus, I think to myself: "Why do I want to be a scientist?" I recall a story my father told me. Unclear about the practical application of a difficult measurement, someone asked physiologist A. V. Hill: why did you do the experiment? Hill paused, then said: "Because it amused me." I want to be a scientist to satisfy my curiosity about the world.

Staring at my first assistant-professor application, I think of what amuses me and satisfies my curiosity. I started my current project with a complex conceptual model for muscle activation. Recalling Henry David Thoreau's advice to "simplify, simplify", I stripped away the complexity with careful assumptions. Then I found an analytical expression whose taut curve hugged the numerically generated points of the complex model. This process of making a problem, in Einstein's words, "as simple as possible, but not simpler" is what amuses me.

I send my application into cyberspace and wonder about my prospects. Late last year, theoretical and applied mechanics at Cornell, the department where I received my PhD, ceased to exist. The dean merged it into the more experiment-driven (and more fundable) mechanical engineering department. Is there a place for someone whose passion lies more on the theoretical side? Must I ignore what amuses me in favour of what makes me marketable?

Sam Walcott is a postdoc in theoretical biophysics at Johns Hopkins University in Baltimore, Maryland.