



## Brain drain

*There is growing concern about Australia's brain drain. The Gazette will be running a series of personal essays by mathematicians who went overseas. John Stillwell from the University of San Francisco voiced his opinion in The Age last year. He will be the first author in this series.*

### One story from the mathematical brain drain

John Stillwell

The origins of the 'brain drain' in Australian mathematics are a long way back, perhaps in 1989, when the mergers of universities with institutes of technology and teacher's colleges started to erode the traditional disciplines, from classics to pure mathematics. This is what happened when Monash University merged with the Caulfield Institute of Technology and the Frankston Teachers' College. In the late 80s, it was possible to do a full 3rd year of Science at Monash in pure mathematics, and we had three different topology courses, at 2nd, 3rd and 4th year levels. During the 90s we were cut back to one topology course (in honours) and many other topics disappeared entirely, among them history of mathematics, geometry, logic, set theory, ring theory and computability. All this happened gradually, however, and people experienced low morale but not outright panic. Until 1997, that is. In April 1997 the Dean sacked 10 members of the mathematics department, and it suddenly became prudent to look for a new job. I was lucky because I happened to have a colleague at the University of San Francisco who was interested in adding to the small department there.

#### Glad to be out of it

For readers who are wondering why academics are unhappy about their working conditions, I'd like to offer the perspective of one who got fed up and left. I now have a job in the US.

Those of us who left did so because of unreasonable administrative demands, broken promises, pressure to pass full-fee-paying students, and the generally philistine attitude of government and business in Australia. Those who stayed still have these problems, and every prospect that they will be exacerbated by the present Government.

All of my colleagues who left Australia — for the US, UK, Germany and Taiwan — are glad they made the move. We still can't get over how lucky we are to be out of the Australian system, and to live in places where teachers and researchers get some respect.

John Stillwell, University of San Francisco,  
(formerly mathematics department,  
Monash University)

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By 1999 he had risen to the position of Associate Dean and was able to offer me a job, thanks to a sympathetic Dean who

was also a mathematician. I had a trial run at USF in 2000, liked it, and signed on as a tenured professor starting in 2002.

On my return to Monash in 2001, it became clear that I had made the right decision. We had a new Dean of Science, and his first visit to the department set a new benchmark for insensitivity and/or cluelessness. He told us how lucky we were to have astrophysics and meteorology to display in our shop window rather than (his exact words) “that boring old calculus and pure mathematics”.

You can imagine with what relish I returned to USF, where I can teach history of mathematics, foundations of geometry, and several other areas of pure mathematics no longer offered at Monash. USF is a small university with small classes (no more than 30 students, often less than 20), a friendly atmosphere and very little administration by Australian standards. It is true that my position would not suit everybody. USF does not have a graduate school in mathematics and the teaching load is eight hours per week. However, with the small classes and light administration it feels less than six hours at Monash. And the opportunity to attend seminars at Berkeley and Stanford more than compensates for the lower priority of research at USF.

Outside purely mathematical concerns, USF is more academic-friendly than any Australian university I know of. They seem to think it's their job to keep academics happy—what a concept! Rather than nagging about occupational health and safety, for example, they give all staff (and their families) free use of the sports centre. Family members can also do USF courses for free. Each month, USF gives me a \$20 ‘commuter check’ for *not* using a university parking space. This goes a long way towards paying for public transport, which costs \$35 a month for unlimited travel in San Francisco. Finally, I guess I need hardly mention that San Francisco

is one of the most beautiful and courteous cities in the world.

What else do I notice that is different about America, mathematically speaking? What amazes me most is the support that mathematics gets from business tycoons. The Clay Mathematics Institute, with its seven million dollar prize problems, gets its money from Boston businessman Landon T. Clay. The Californian founder of the Fry Electronics chain, John Fry, funds the American Institute of Mathematics, which is currently building a kind of palace for mathematicians, modelled on the Alhambra. A slightly different example is the Dibner Institute at MIT, endowed from the estate of engineer Bern Dibner. This institute supports about 20 historians of science per year, usually including a couple of mathematicians (and, for some reason, one or two of the historians are usually from Australia). Another millionaire I've heard about is funding a kind of mathematical genius-spotting project. He pays a professorial-level salary to a mathematician who travels around the country visiting child mathematical prodigies. Even the much-maligned Bill Gates has given hundreds of millions of dollars to universities.

My position at USF is one semester per year—my choice, because I want to spend alternate semesters back in Melbourne and get some writing done. It also enables me to keep in touch with the situation here. I have just spent the last semester at Monash and taught the honours topology course. The class was unusually large and the students were very good, but in other ways Monash has become even less attractive. In another act of insensitivity and/or cluelessness, the administration has started charging departments rent for the office space they occupy. I was reminded several times that my office costs the department \$1500 per year, and I was offered considerably less than the going rate for honours teaching.

Now I feel that I've already paid next year's rent.

As for the bigger picture, Australia doesn't seem any more friendly to science and mathematics than before. I recently visited the State Library of Victoria to see the refurbished reading room. This was one of my favourite haunts when I was at school, my window on the vast world of knowledge. It used to be full of books on

every conceivable subject.

Today, the reading room no longer looks out on the world, but on a small backyard. All the books are Australian. There are 11 shelves of books on sport, about half a shelf on the physical sciences, and *none* on mathematics.

Are they trying to tell us that mathematics is unAustralian?

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## MathMedia

*The Age 1/2/2004*

# Maths experts do their sums — and head overseas

**Kate Nancarrow**

Australia's maths graduates are being lured overseas by organisations hungry for analysis of everything from banking and insurance risk to shopping trends.

Associate professor of maths at the University of NSW Jim Franklin said the commercial world "has long understood what mathematicians can do for them" and many of the country's brightest maths graduates were pursuing careers on Wall Street or in London.

He said international demand for mathematicians would only increase as banks around the world implemented the Basel II protocol, which would set an international stan-

dard for banks to set aside capital for risk. "Graduates will be able to pick any country to work in . . . There will be enormous employment opportunities for this as it must be implemented by 2006."

Mr Franklin said financial institutions increasingly needed mathematicians to calculate risks associated with particular types of transactions, such as those seen in the HIH collapse and the recent NAB trading losses.

Mathematicians were also needed worldwide for "data mining", which involves isolating statistical trends.

This growing worldwide demand for maths graduates, and the local shortage these overseas opportunities create, have prompted the Federal

Government to pour \$7.8 million into a specialised maths learning centre founded by the Bracks Government at the Australian Mathematical Sciences Institute in Carlton.

Institute executive officer Jan Thomas said the "loss of mathematical talent from this country has been absolutely appalling". But there was now a bipartisan effort to stop the brain drain in an area that would become crucial to Australia's economy.

She said US research institutes were offering salaries double or treble those available in Australia and banking and finance industries were increasingly heavy users of mathematicians.

AGENDA No going back

See also <http://www.theage.com.au/articles/2004/01/31/1075340889251.html>.