

## **Jak Kelly – Peerless Head of the School of Physics, UNSW 1985-1989**

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### **Abstract**

Jak Kelly served as the Head of the School of Physics at the University of New South Wales from 1985 to 1989. This article provides a perspective of life in the School of Physics in Jak's day compared to 2013, as seen and experienced by the current Head of School.

I have been asked to write something about Jak Kelly. My instructions are to write something about Jak Kelly the man and the scientist and something also from a Head of School perspective, the suggestion being to contrast the job as it was in Jak's time as Head (1986-1988) with the nature of the job today. Actually this is a little difficult because I came to Australia only in 1991 (Jak had by then already retired), I didn't know Jak and, although I did see him in the corridors of the School from time to time, we never spoke. However a little informed guesswork is possible and a sketch of things as they were then can be gleaned from the recollections of staff who have been with us in the School since the 80s. One thing I am sure about is that the job, in some respects, is very different today.

I attended Jak's funeral in 2012 and met many of his family and friends. It was obvious as we heard from the many in attendance that Jak was a very special man, a talented researcher and teacher and a man with wonderful family and many devoted friends, colleagues and students he'd taught and supervised.

So let's look back a bit to the earlier days of the School, 20-25 years back.

When I arrived at the School in February 1991, Bob Starrett, a Professional Officer in the School since time immemorial, took me to a (very) dusty room half way along the Lower Ground Floor of the Old Main Building and said "I want to show you something, I think you'll find it interesting". Half an hour later with Bob still fiddling with diecast boxes and BNC cables I was becoming quite impatient when a rotating globe icon appeared in the corner of the 10 inch black & white monitor and Bob said: "that's the internet, it's great isn't it?" Fascinating, Bob. What does it do?" After a 10-minute briefing from Bob I remained unconvinced, couldn't see any potential in the daft distraction Bob called the Internet, and we went off to lunch.

It's quite likely that Jak wouldn't have been able to anticipate either – who could have guessed? – the impact the internet would have on so many things, changing the nature of work, leisure and things one could put in the category "irritations".

I say irritations because, once upon a time, to request that someone at the other end of campus, or further afield, do something required a phone call or often a letter. In

Jak's time a letter would be drafted, typed, proofed, put into an envelope and posted. The recipient would receive the instruction up to a week later. The advantage of the inertia build into this system of communication, aside from the extra work required is that people issued less requests for action or for compendious data sets etc. An even bigger advantage was that people probably thought more carefully about the reason for their requests for action and information. Perhaps with the time saved people were able to engage in more profound activities and not the "thought bytes" that we must sometimes be content with nowadays?

So what was Jak doing back then, BTI (Before The Internet)? One of Jak's earliest papers was a nice piece of work published in *Nature* in March 1950 and concerned the use of interferometry for sensitive measurements of vibration – for example vibration of buildings. This work was performed at the National Standards Laboratory, CSIRO. By the mid-50s Jak was at the University of Reading studying for his PhD and had moved on to thin film physics, radiation detectors and the properties of molten metals, work which Jak continued until the early 1960s, firstly at Reading, then the Atomic Energy Research Establishment, Harwell and then at the School of Physics, UNSW, having taken up a permanent academic position in the School in 1961.

I am fortunate to have to hand a copy of Jak's D.Sc. thesis from 1972, a collection of some 39 papers that form a very nice "roadmap" for Jak's research directions.

A key development in Jak's "Materials Irradiation Laboratory" in the School of Physics was the availability of a 1.2

Megavolt accelerator, a machine "inherited" from ANU and installed on UNSW's Randwick Campus. This machine became the workhorse for much of Jak's subsequent research. Jak worked on sputtering, particularly of the Alkali Halides, and on the interaction of energetic electrons with crystal lattices, particularly channelling in crystals.



*Figure 1. A thoughtful looking Jak in front of the high voltage stacks of the 1.2 megavolt accelerator at Randwick campus. Photo courtesy of Patrick McMillan.*

At this time Jak also co-authored a series of very nice theory papers. The series on "Wave Theory of Lattice-Directed Trajectories", written with Hans Nip, which appeared in *Physical Review B* are a good example of this work.



*Figure 2. Jak with his research group from circa 1989. From left to right: David Cohen (ANSTO) PhD student, QiChu Zhang (UNSW) PhD student, Zoltan Kerestes (UNSW PhD student, Bruce Beilby (UNSW) PhD student, Jak Kelly, Eric Clayton ((ANSTO) PhD student, Mathew Borland (UNSW) PhD student, Bob Dalglish (UNSW) PhD student, Jules Yang (UNSW) Jak's Technical Officer, Rolf Howlett, Jak's ARC Co-investigator. Many thanks to Patrick McMillan for identifying these people and to Ranji Balalla for supplying the picture from her personal album.*



*Figure 3. Illustrious company! Jak shakes hands with soon-to-be Head of School of Physics John Storey. Seated, left, Dean of Science at UNSW Ted (Villem Teodor) Buchwald, Professor of Applied Mathematics and Dean of Science 1980-88, and right, the late Gavin Brown who was Dean of Science at UNSW 1989-1992 and then Vice Chancellor of the University of Adelaide and of the University of Sydney.*

The work at the Materials Irradiation Laboratory led to international recognition for Jak for his lab and work on ion implantation and defects in materials.

Jak became Head of the School of Physics in 1985 and served a 3-year term. During this period he was also elected Chair of the Faculty of Science. Jak took over the headship from Ken Taylor and was succeeded in 1988 by John Storey.

In 1985 some aspects of School life were quite different. The academic and general staff complements were larger. All senior members of academic staff had a personal secretary – unthinkable today as this would be prohibitively expensive – but essential because everything formal would be typed, usually on an IBM “Golfball” typewriter. Typing anything with a significant amount of mathematical content would be excruciating because the golfballs would need to be continuously switched in and out to provide the range of symbols and fonts required.

Nowadays academics type practically everything themselves but in the 1980s a professor would work closely with her or his secretary and a mistake on an ARC application requiring re-typing would surely have put some serious strain on this working relationship and presumably needed the odd lunch to restore equilibrium.

There is a handy segue here. I have talked to half a dozen people in the School who knew Jak and there is a constant theme in their remarks: Jak was a kind and most generous Head of School, he was always extremely supportive of junior staff.



*Figure 4. Jak Kelly with his Head of School PA (1986-88) Ranji Balalla at Jak's retirement party. Ranji is an excellent source of anecdote from that time (and is still in the School). One winter day Ranji told Jak that she'd never seen snow. The next morning Jak put some keys on Ranji's desk and said: you and your family should go down to stay at my cabin in Lake Eucumbene, you'll see some snow there! Typical Jak Kelly thoughtfulness and generosity.*

Furthermore, Jak was a terrific lecturer, universally appreciated and much liked by students. He had a wonderful sense of humour, often more than a little mischievous. One colleague commented that Jak would enjoy “stirring the pot”, this done, of course, without mal-intent.

Talking to two senior colleagues who knew Jak well and were in the School when he was Head has provided an interesting perspective – no names here for obvious reasons!

There was, apparently, regular and “robust” discussion about who should have which space in the School and how much of it. So no change there, space has always been one of the most challenging of all issues and a perennial headache for heads.

I am sure Jak managed space issues with aplomb and probably used humour, quite liberally, to defuse potentially explosive situations. I say potentially explosive situations because it would seem there have always been one or two people in the School who are burdened with an unrealistic view of their own co-ordinates and are surprised to be told that they are not, in fact, at the centre of the Universe. With what I’ve discovered about Jak I think he would also have dealt with these characters with composure and style.

Today I asked a former Head of School for his view of how the job has changed over the past ~30 years, particularly with regard to changes in the nature of the job and changes in workload due to the information technology and communications revolution that’s taken place in the intervening years. I was stunned to be told that a Head of School in the 1980s and early 1990s could contain a full year’s School correspondence in a single manila folder containing a stack of sheets approximately one centimetre thick! That sounds like a party trick; today the correspondence accumulated in a few days would exceed that, if printed out.

Many other things have changed, too. OHS was no more than an acronym in the 1980s.

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Now it is a vast, consuming activity with truly byzantine intricacies. Key performance targets (KPI’s aka KPIs) were unknown. Human Resources was “Personnel” and a staff appointment could be made by mailing a single sheet of paper.

But let’s be clear about one thing here, Physics at UNSW has always been strong, the School having both strength and depth, and in Jak’s time the quality of teaching and research was just as good, if not superior to, what it is today.

So what does this all add up to? For you, dear reader, who has passed the point in life at which one starts to acquire wisdom more rapidly, you will say: I know this already, many things in the life of the School have changed, some for the better, and some not.

So it’s one step forward and two back? Possibly. It is tempting to wonder whether or not we are achieving more these days. Not greater numbers of this and that as measured by bare metrics but profound discoveries, things that are of genuine benefit humanity, things that will help us solve some of the challenges facing the planet and persuade naysayers that now is the time for action.

So what would Jak do? Well I think he’d manage things the way he did back then, with clear and thoughtful leadership and with kindness, generosity and a good dose of humour about it all – and I think he would manage rather well.

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