

Monash's Glen B. Deacon

**50 years
and counting**

Glen Deacon in his old Monash office in 1976, posing for a gag photo. Nick Thomas

A past student recalls the many contributions of 'Dr Deacon' during 50 years at Monash.

BY NICK THOMAS

As a PhD candidate in the Monash University Chemistry Department from the late 1970s to the early 80s, I was occasionally interrogated by undergraduate students enquiring why I chose to work with Glen Deacon. Glen – who was last year recognised for 50 years of service as an educator and researcher at Monash – had a bit of a tough teacher undergrad reputation due to the blistering fast pace of his inorganic lectures. My response to such queries was usually straightforward: 'If you have an interest in chemistry, work with someone who has a passion for it.' Glen had – and at 81 still has – that hunger for scientific

inquiry. And while the booming voice and no-nonsense lectures could be intimidating, he could also appreciate (and dispense) a dose of humour.

As an undergrad myself in 1976 and knowing 'Dr Deacon' as an encouraging third-year lab instructor, I barged into his office on 15 September that year to persuade him to be photographed for a gag gift I was preparing for a fellow chemistry student's birthday. He agreed, posing at his desk holding a copy of the faux volume *I was a teenage spectroscopist* (in reality, a chemistry book recovered in brown paper and retitled in hastily handwritten black lettering).

Photo shoot complete, I dashed off

to a friend with developing and enlarging equipment to produce a splendid 8 × 10 black and white print, which was promptly signed by Glen, framed, wrapped and presented to its intended recipient that same evening to much acclaim. How could a student contemplating honours not consider collaborating with an educator so willingly complicit in such a delightfully bizarre scheme?

Glen Deacon was born in the Adelaide suburb of Unley, in 1936, to parents with no science background. 'My mother was a school teacher and my father was the numismatologist at the art gallery who, as editor of a coin journal, probably published more than I have!' recalled Glen, when we spoke last December, and who has accumulated almost 600 refereed publications to date. A high school teacher, Sid Eberhard, motivated his interest in chemistry. 'He made chemistry fun. His showpiece was adding phosphorus in CS₂ to a mixture of potassium perchlorate and sugar. He would wait until the solvent evaporated, turn to the fume cupboard and announce "Now!" and there would be this almighty explosion. Something like that was bound to impress a young student.'

Glen's curiosity in inorganic chemistry developed towards the end of high school when students were permitted to perform cation/anion analyses in the lab after school – unsupervised. 'By the end of the year, I probably did 60 of these, learning a lot of chemistry. Needless to say, time in the lab wasn't restricted to only doing unknowns!' Glen later completed his PhD with Bruce West at the University of Adelaide. 'I was supposed to study reactions of phosphines with CF₃I, but ended up doing mostly mercury coordination chemistry.'

Several years of subsequent postdocing further inspired a life-long interest in main group metals, and included three years at University College London with Ron Nyholm. 'He didn't care too much what you did so

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long as you wrote it up and put his name on it. I was supposed to be making Tl^{II} compounds with Tl–Tl bonds, but did mostly fluoroaryl chemistry of thallium as well as fluorocarbon mercury synthesis in collaboration with Alywn Davies, who was an outstanding organometallic chemist. This collaborative work led to an interest in decarboxylation reactions.'

Glen was appointed to a Monash lectureship in 1966, two years after Bruce West became the Inorganic Chair. Bruce would later write in the department's 1986 Silver Jubilee Commemoration booklet that Glen's background in organometallic and coordination chemistry of main group metals would bring 'this important interest to strengthen both teaching and research in the department.'

Allan Canty (now Emeritus Professor, University of Tasmania) joined Glen's group in the late 60s to explore weak coordination interactions in organomercury complexes and remembers Glen's exceptional attention to detail. 'If IR spectra of a solid clearly indicated a change from the two reactants, he still insisted on X-ray powder photographs and UV spectra. Every peak in an IR spectrum was reported in publications, a very rare practice at that time or subsequently.'

A new research direction opened up in the 70s after Glen discovered rare earths during a sabbatical. 'I was heading back to University College but Ron died while I was on the ship going over', he recalled. 'It was a great tragedy because he was only 52 and drove his car into a bus, which I suspect was due to falling asleep at the wheel.'

With Nyholm's demise, Glen filled a spot in Alywn Davies' lab, but also visited Alan Hart at Queen Mary College. 'He was doing some f-block chemistry, believing it would generate grant money opportunities. That seemed a good reason to bring lanthanoid chemistry to Monash, around 1974. It proved successful and was of national interest.' Nyholm's earlier influence also helped shape Glen's research strategy, which he says was 'to let your chemical imagination run wild and also to give your underlings a bit of rope to express their own creativity'.

Ewan Delbridge completed honours and PhD lanthanoid work with Glen during the late 90s and today works for the Lubrizol Corporation, Ohio. 'I was tasked with making lanthanide/main group heterocyclic cyclopentadienyl complexes', recalled Ewan. 'We discovered some new ligand binding modes we never thought possible.' Personal memories of Glen remain vivid, as well as GBD (as we sometimes referred to him) the researcher and educator.

'He had a formidable (classroom) presence and was a little intimidating – no one dared ask a question that might be deemed stupid. And that distinctive Abraham Lincoln beard was a GBD classic signature. He also donned the lab coat often and behaved as the perpetually tinkering professor. His office was littered with seemingly random piles of paper – all of which were readily accessible to him. But Glen was very passionate about his projects and people – he was a cheerleader, which is so very important. More than anything else, he gave me the skill to be a holistically well-rounded scientist, which I have

Glen expected group members to display a high level of professionalism in their daily interactions and wasn't shy about rebuking us with his characteristic wit should we fall short of expectations.



(Top) Glen's ruthenium group in the early 1980s consisting of third-year, honours and PhD students supervised by Drs Glen Deacon and David Black (back, right). Glen began ruthenium work in the late 1970s. Nick Thomas (Bottom) The Deacon Group in 2016 consisting of postdocs, honours and PhD students. Courtesy Peter Junk

applied over the last 17 years either as a postdoc, assistant professor or technologist at Lubrizol.'

Ewan says Glen was a perfectionist when writing manuscripts, although their completion could take an infuriatingly long duration – at least to students, impatient to see their names immortalised in print. 'He'd shape my results into prose that was rich with accurate, yet elegantly simple, description and his writing was so descriptively dense – packed with meaning and no redundancy.' Ewan also recalls formal meetings with Deacon Group members. 'They were "chalk talks", which forced one to think on one's feet and develop an articulate style. And they were regular, which engendered accountability for one's progress. It was something I subsequently adopted in my own career.'

Naturally, Glen expected group members to display a high level of professionalism in their daily interactions and wasn't shy about rebuking us with his characteristic wit should we fall short of expectations. Geoff Stretton (1986 PhD in NMR studies of organomercury compounds) remembers Glen's frustration during a period of poor meeting attendance in the early 80s, prompting a memo to all. 'The only acceptable excuses for not attending were hospitalisation or death!' recalled Geoff, of Glen's proclamation. On another occasion, when an honours student 'forgot' to return to the lab after a pub 'lunch' one Friday afternoon, Geoff says this yielded another memorable Deacon declaration: 'If the weekend begins at Friday lunchtime, the week begins Sunday lunchtime.'

Geoff also recalls Glen's uncanny memory. 'He enjoyed answering questions in a conversation by quoting references by name, publication and page number. More often than not, he was correct.'

Although Glen's research branched out successfully into many areas, including environmental chemistry,

ruthenium chemistry and platinum anticancer work, he believes his lanthanoid studies produced some of the best results. 'My chief interest has always been simply to make new compounds and develop new synthetic methods. With Bruce in Adelaide, I did a lot of reactions with volatile phosphines, which were air-sensitive so I developed a taste for difficult chemistry. Working with unstable lanthanoids can be very challenging, but extremely rewarding.'

In fact, collaboration with just one researcher produced over 140 joint publications. Glen refereed Peter Junk's PhD thesis in the late 80s. 'He took me on as a postdoc in December 1995 after one of his postdocs left suddenly to start a restaurant in Canada', recalled Peter, who worked in industry before the postdoc, and is now Nevitt Professor of Chemistry at James Cook University. 'I jumped at it, because I thought rare earth organometallics was a place to get into around that time.' Originally from Western Australia, Peter still recalls first meeting Glen in the department corridor. 'He said "you must be Junk. You look like a surfy type I expected from the West".'

Despite being what Peter calls 'polar opposites in many ways', the two shared an interest in sports as well as chemistry. 'Glen would reel off the scorers, best players, results, and any controversies. He follows sport like no one I know. But we are also deeply passionate about our research and can talk hours upon hours upon days about rare earth chemistry. Academia is a difficult place to have success and without Glen's mentoring, I would more than likely have ended up back in industry. I do believe we have forged a working relationship that is well-known worldwide in rare earth circles.'

Over the years, Glen has indeed been recognised with the international Terrae Rarae Award for rare earth chemistry (2006) and the RACI Burrows medal for Inorganic



Peter Junk, Glen Deacon and wife Merrowyn at a conference in Tuebingen, Germany, October 2017. Courtesy Peter Junk

Chemistry (2007). Six years ago, he received an unexpected honour: in discussing three metal-mediated ligand decomposition reactions in a 2012 *Organometallics* article, the lead author unofficially christened the desulfonation of a metal sulfonate as the 'Deacon reaction'.

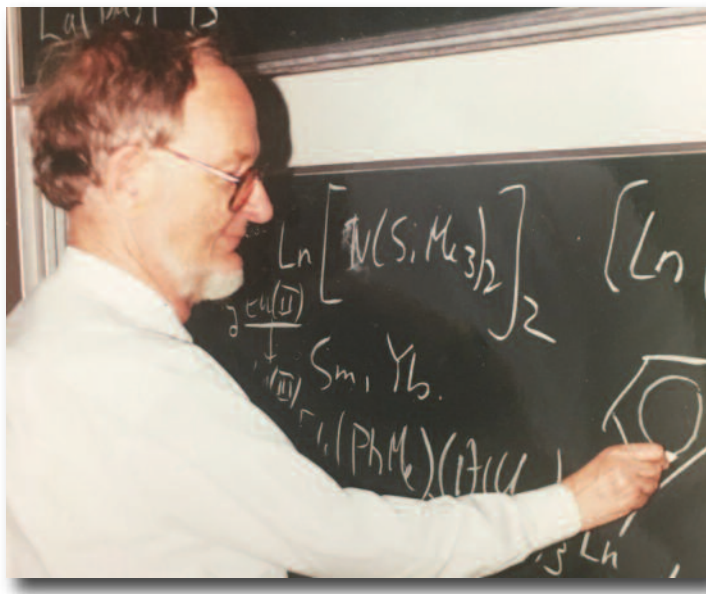
'CO₂ and SO₂ eliminations have names (Pesci and Peters reactions, respectively) so naming one for SO₃ was reasonable', notes Glen. 'Richard O'Hair from the University of Melbourne named it after me which was very nice indeed. He did ask if I objected and naturally I didn't!' Richard says the designation was logical, given Glen's contributions to the area. 'My motivation was simple: I am interested in the history of chemistry and how we stand on the scientific advances and achievements of those who went before. I don't think there are any IUPAC rules for naming a

reaction – we just managed to sneak it past the editors and reviewers!'

Of course, students also resort to sneakiness, especially when relieving a chemistry department of hazardous chemicals for unauthorised 'experiments'. This occasional appropriation of dry ice, liquid nitrogen or alkali metals was demonstrated during the 1978 Deacon Group barbecue – an anticipated annual event held for many years. That year's late March outing at a local park was memorable when a chunk of sodium metal residues (best described as the size of a partial brick) was smuggled in. Loosely wrapped in weighted protective wax paper, the projectile was launched into the lake, submerging with predictable results moments later.

The deafening detonation attracted the attention of an agitated park ranger, determined to identify its

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Glen Deacon, chalk in hand, at the blackboard in 2001. Courtesy Peter Junk

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origin. ‘Yes, we wondered what that noise was’, commented one snarky PhD student as a wave of thinly disguised smirks swept through our ranks. Unable to identify the culprit, the frustrated ranger retired defeated. Despite projecting an image of the sober-minded academic, we always suspected Glen relished such incidents, if only to briefly rekindle youthful memories of his own thrilling chemical experiments that have probably also ignited an interest in science for more than a few professional chemists.

During his half-century at Monash, Glen brought in millions of dollars in grant money and supervised over 130 honours and postgrad students, each with their own reasons for pursuing a career in chemistry – whether it be the discipline’s more flamboyant side or from experiencing an addictive dose of theory during one of Glen’s notoriously rapid undergrad lectures. ‘I suppose I was influenced by Bruce West’s style of lecturing, which was to pour out the facts of

inorganic chemistry on those old rotating chalkboards. I also found it helpful to find one student in the audience who looked interested and deliver the whole lecture to them – that certainly keeps you focused. In later years, I began wandering up the aisles while lecturing, which has a very deterring effect on misbehaving students.’

While creativity, good technique and a willingness to work hard are valued qualities he assesses in potential students, Glen also has advice for those considering doctoral work. ‘The primary requirement is to choose a project you will enjoy doing.’ His past students would probably agree, but also acknowledge profiting from Glen’s encouragement to explore their own research ideas.

Today, as an emeritus professor still with an office, lab, students, some research funding and lighter teaching duties, Glen maintains an impressive output – some 10 publications a year. ‘That gives me some degree of security. I was turfed out of my old

office in 2004 and now have a microscopic office near physics, but that’s an advantage, too, because no one will want it!’

Last May, Glen was officially honoured for his 50 years at Monash with a formal ceremony. ‘It was actually my 51st year by the time they got around to doing anything, but that was fine. There was a presentation with a medal allegedly composed of silver.’ I suggested to Glen that perhaps the medal should have been cast in a metal more befitting a noted lanthanoid chemist, such as europium!

‘That certainly would have been more valuable, but not a good idea’, he replied. ‘You couldn’t use any and have a shiny surface – far too reactive and air-sensitive.’

I see ... my bad. Thank you, Glen – still the educator!

Nick Thomas (nthomas@aum.edu) is currently a professor of chemistry at Auburn University at Montgomery, in Alabama, USA. He has also written features, columns and interviews for over 650 magazines, such as *Nature*, and US newspapers including the *Washington Post*, *Chicago Tribune* and *Boston Globe*.