

The life of Brynn

In this International Year of the Periodic Table, **Dave Sammut** and **Chantelle Craig** profile Australia's representative to the IUPAC Analytical Division, Emeritus Professor Brynn Hibbert.



This year is a year of celebration for chemistry. For a profession that counts its history in centuries, this is a milestone year: 150 years since Dimitri Mendeleev first published his periodic table. The International Union of Pure and Applied Chemistry, IUPAC, will celebrate its own centenary by killing the kilogram – at least in corporeal form. January kicks off the International Year of the Periodic Table (see box p. 22). And on World Metrology Day (20 May), new definitions will come into force for the ampere, kelvin, mole and kilogram (see box p. 23).

These new definitions for the SI units are the culmination of years of international collaboration (and argument) among scientists who really know how to nitpick.

This is not another article about metrology – a topic so dry it can't even be read without a handy glass or

beaker of something wet close by. Instead, we'd like to profile Australia's representative to IUPAC's Analytical Division: the RACI's own Emeritus Professor Brynn Hibbert, recently appointed a Member of the Order of Australia (AM), renowned as a metrologist, expert witness, raconteur, all-round great guy, and a man who would never object to the proximity of a cold and frosty beverage.

We'll freely admit to being big fans of Hibbert. He was a close friend of Don Craig, Chantelle's father (who was himself a chemistry colleague at UNSW for 54 years), and has been an inspiration to Dave throughout his career. So, for this article, we set out to 'chew the adipose tissue' with Professor Hibbert.

The year ahead will be another busy one for Hibbert. July brings the centenary celebration for IUPAC. 'The French are good at putting on parties',



***The Wanderer and His Shadow*, Huihai Xie (1957–) (mixed media on canvas 137 × 198 cm). This portrait of Hibbert was a finalist in the 2000–2001 Doug Moran National Portrait Prize.**

says Hibbert, 'I shall go along as [IUPAC's Interdivisional Committee on Terminology, Nomenclature and Symbols] ICTNS Secretary and the Australian rep and also probably one of the Australian delegates to the general assembly. It's actually brilliant! You've got the flag, and the voting card, and it's just like the Eurovision Song Contest ... or so I imagine. *Australia trois points!*'

Of his current role with the ICTNS, Hibbert jokes: 'I am in charge of the terminology of chemistry'. Wielding this power with grace, he assures us that he does not intend to revisit the spelling of 'sulfur'. Nor will we see IUPAC's disastrous attempts a few years ago to 'rectify' common usage terms in science, such as trying to stop the use of 'acetylene' for 'ethyne' and trying to force chemists to replace 'sample' (due to its mathematical concept of a number of items taken

from a population) with 'test portion'. As Hibbert observes: 'They very quickly realised that nobody took a blind bit of notice'.

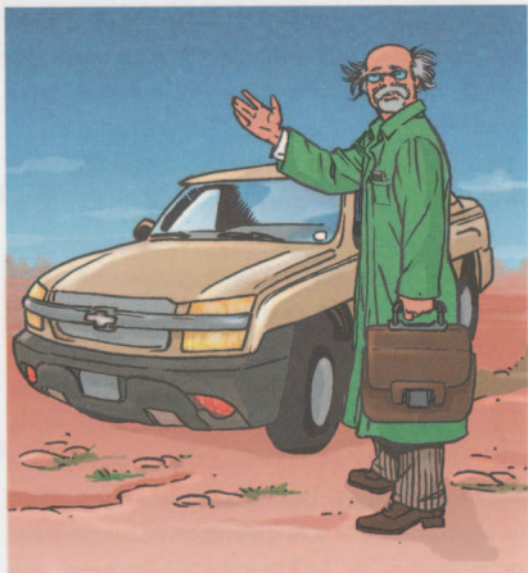
This sense of humour is characteristic of Hibbert. Personable and self-effacing, he jokes that his office at UNSW – shared with several other emeritus academics – should be called the 'Thanatocoenotic room', a geological term for a stratum in which a lot of old fossils have died together. Continuing his jokes – this time about his transfer to emeritus status – Hibbert decries that he never actually got to deliver his retirement speech, in which he set down the guiding principles of this life: that he 'had suffered fools gladly' and 'never left his comfort zone'.

Discussing his career, Hibbert says: 'I've always been distracted too easily, but I reckon that I've published with more people than any of my

colleagues'. He has certainly touched on a lot of areas, from his prized *Nature* cover article on fractals to his being featured as a character in a best-selling French-language book for children (in which the eponymous character investigates the cause of a fire, eventually determining it to have been caused by a (small) meteor).

Born in Yorkshire, England, to parents who had little education, Hibbert was raised in Bournemouth. Father Herbert was a retired grocer and mother Florence had run a hairdressing business. He recounts his mother saying to the children: 'I don't know what that university is, but thar's going to it'. His much older brother, whom he idolised, studied chemistry at Kings, 'and so I did', he states, 'That was it. No teenage angst'. And it was only later that his brother admitted that he never wanted to be a chemist. He wanted to be a historian. 'You bastard!'

Puis Brynn Hibbert enferma précieusement la paillette dans une éprouvette, et la rangea avec son matériel. Il fut reconduit à sa voiture, fit crisser ses pneus sur la terre ocre du bush, et salua la troupe d'un grand geste du bras à travers la fenêtre. Puis il disparut dans le lointain, emportant son trésor sur la route de Sydney.



Text: Nathan Editions. Art: Loic Malnati

Then, Brynn Hibbert carefully sealed the speck in a test tube and stored it with the rest of his equipment. They took him back to his car. He made his tyres squeal on the ochre soil of the bush, and waved a salute to the band through the window. Then he disappeared into the distance, taking his treasure away on the road back to Sydney.

Hibbert exclaimed, 'Then I'd have been an historian!'

Hibbert was awarded a scholarship to study at Kings. 'I flourished at chemistry. My passion for it is more because I can *do* it, and I can do it

Chemistry at the UNSW in 1987. 'I had this really good interview [in 1986]. It turns out I didn't know what ICP stood for, but never mind ... When they offered me the job, you could have knocked me down. And it was really

rather good because that week Chernobyl happened and I remember thinking that Australia is really a long way away from there.'

On teaching, Hibbert says 'A student once said that "I liked Professor Hibbert's lectures the best because he never mentioned chemistry"'. In fact, I did tell them quite a lot about chemistry and the fact that he didn't notice was really rather good, I thought. My attitude to teaching goes something like this: I do not believe education is tiptoeing down the garden of knowledge hand in hand with your

International Year of the Periodic Table

According to IUPAC, 'The United Nations has recognised the importance of raising global awareness of how chemistry promotes sustainable development and provides solutions to global challenges in energy, education, agriculture and health'.

Professor Mary Garson (Past President, RACI Queensland Branch) currently serves on IUPAC's Subcommittee on Biomolecular Chemistry, and is responsible for the global planning of IUPAC's centenary celebrations. She notes that the Periodic Table of Younger Chemists activity (<https://iupac.org/100/pt-of-chemist>) features as 'iron' the RACI's

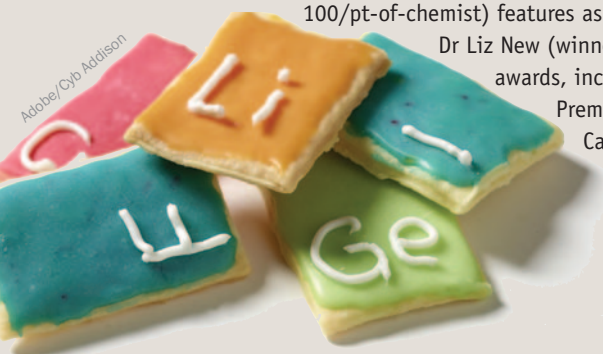
Dr Liz New (winner of multiple awards, including NSW

Premier's Prize for Early Career Researcher of the Year, 2017).

Commencing in January 2019, the Periodic Table Challenge (<https://iupac.org/100/pt-challenge>) is aimed at secondary school students. After taking a quiz, students will be asked to identify an element that is special to them. They are then asked to make an artefact that demonstrates why this element is special for them. The artefact may be a picture, a physical object, a poster, a short story, a video, whatever they like.

At the time of writing, 20 countries have signed up to participate in the Global Breakfast Networking activity (<https://iupac.org/100/global-breakfast>) to be held on 12 February 2019, with expressions of interest from seven others.

RACI is canvassing ideas for its own celebrations for the International Year of the Periodic Table. Keep an eye on your branch newsletters for opportunities to get involved.



students as you learn together. As it happens, I know heaps about chemistry and if you ask me nicely I'll tell you.'

One of Hibbert's early PhD students in Australia, Dr Karyn Weitzner, recalls how popular he was as an engaging lecturer and active supervisor. 'One of my biggest memories is that our school was old, run down and poorly funded', says Weitzner with a smile, 'We often had to run our experiments on jury-rigged equipment, barely holding together. Brynn would come into the lab, and in his enthusiasm touch something and break it, then cry "Oops, I've got to go" and quickly scurry out again'.

In our chat, Hibbert was enthusiastic about the substantial expansion of access to university. 'It's really good that tertiary education has come to the masses', he says, '... as long as we can still recognise the one or two super bright students in a year and make sure they do a good PhD, then that's good'.

How does Hibbert see the balance of pure versus applied research at universities? 'Universities should be concentrating on pure research rather

than applied, very much so, but of course pure research comes often from different angles. So, you can have an applied problem, that when you've solved it, can have wide-reaching consequences. Simply doing research for its own sake is okay – there is a continuum – providing that bedrock on which the applied advances are made is probably what universities do well'.

He was less enthusiastic about the modern shift in the focus of learning away from analytical techniques and towards individual applications (such as forensics). 'I reckon that we now teach perhaps a third of the chemistry that we used to teach. Now it's all about uses, and not methods', he says. 'When do they actually learn about the analytical chemistry?'

Hibbert's advice to the next generation of scientists is, according to him, 'boring': 'Work hard, because if you don't know anything you can't advance knowledge. So all this – "it's at the touch of a button and Google things" – it's only half of the story. It's about knowing an awful lot of stuff, and that means not just what you do, but everything around it. So, try and open

up to as much as you can and learn as much as you can. And never say "no". If anybody asks you to collaborate, say "yes" and things will work for you.'

We've run out of space to talk about Hibbert's role as Head of School at UNSW, his subsequent career as an expert witness in court proceedings (see Sep/Oct 2018, p. 18), nor his term as President of the Royal Society of NSW, nor Hibbert's wonderfully engaging public speaking. Suffice to say that should you ever have a chance to hear him speak, or to sit down with him for a chat, then this will be a part of your life very well spent.

In a discipline sometimes best characterised by its eccentrics, Brynn Hibbert is a wonderful example of the atypical, a three-sigma outlier.

There will come a day when Hibbert will need to retire from his active retirement. Asked about how he would like to be remembered when that day eventually comes, he responded succinctly: 'Mostly harmless'.

Dave Sammut FRACI CChem and **Chantelle Craig** are the principals of DCS Technical, a boutique scientific consultancy providing services to the Australian and international minerals, waste recycling and general scientific industries.

RIP International Prototype Kilogram

The redefinition of the SI units was discussed in the Nov/Dec 2018 issue (p. 28), and the final resolution was passed at the 26th meeting of the Conférence Générale des Poids et Mesures (CGPM) on 16 November 2018 – with a live broadcast to YouTube.

In the simple explanation from Brynn Hibbert, 'There is the big K [the International Prototype Kilogram, currently the international physical definition of the kilogram] and the 50-odd copies around the world. At the moment the big K weighs one kilogram with no uncertainty – after the approved cleaning method – end of story. After World Metrology Day, the big K will then be an object that weighs (we hope) roughly a kilogram, that we can measure, and the measurement will have uncertainty.'

The new measures will be based on the use of fundamental physical constants. 'I was reasonably against [the use of constants] for a long while,' admits Hibbert 'I was brought kicking and screaming to the fold. Some little bit of the universe may have a different speed of light – who knows?'

'There's quite a few people around the world who think it's the end of civilisation.'

Monsieur Kilogram, a character in NIST's League of SI Superheroes animated online series, is able to determine the mass of any object simply by holding it. NIST

