

Vale: Professor David Boyd (26 June 1926 – 2 November 2016)



Professor Boyd at the Archimedes office, 2011.

Family, friends and colleagues of Professor David Boyd were deeply saddened by his passing in early November last year, but also gladdened by the impact that he had on geophysics, science and many other facets of life.

We happily celebrated Prof's 90th birthday at the Adelaide ASEG Conference last August^{1,2} – he was energetic, humble, inspiring (as always) and 'engaged'. He attended the entire conference – not to collect his ASEG Gold Medal, nor to receive the accolades at the two social functions that his ex-students arranged for the occasion – he was actively chasing new and different ideas and ever keen to engage with bright young geos, taking the early steps in their careers. The enduring recollection of Prof at the August ASEG is immediately post the award presentations, of course led by his own Gold Medal. A young lady by the name of Camilla Sorensen had received the Shanti Rajagopalan Medal for the best paper published in *Exploration Geophysics* by a student in the period leading up to the conference. Prof shunned the back-slapping for his own award and made a bee-line to Camilla to congratulate her and, no doubt, to encourage her to follow in Shanti's footsteps. David had many

outstanding students but; after Shanti's untimely death from illness in 2007, he intimated that Shanti was 'a special student'^{3,4}. The achievements of his students were his driver, and the way he inspired and guided them to achieve is a lesson for all those who teach.

Prof's student list is long⁵, and many of those students have become industry leaders – in mineral exploration and mining, in oil exploration and production, in advanced research (both minerals and oil & gas) and in corporate life. His legacy will last well beyond this obituary. His quest to bring overseas students into the Australian geophysical community had its most satisfying moment when Shanti Rajagopalan (from India), Zhiqun Shi (from China) and Irena Kivior (from Poland) met with him at the ASEG conference in 1989, comparing notes on their respective PhD projects and the applications of their work in both minerals and oil & gas exploration.



Shanti, Irena and Zhiqun – the Prof's PhD graduates from India, Poland and China.

A key facet of the Prof's teaching success was his collaboration with complementary technical specialists. At Adelaide Uni, he brought in Peter Brooker to lecture in high-level mathematics, geo-statistics and computing. Those of us who endured a Dr Brooker lecture, comprising reams of partial differential equations and/or mind-bending matrix inversions, could look forward to the next Prof Boyd lecture, knowing it would feature stories of geophysical adventures in darkest Africa or other exotic places worldwide⁶. The challenging Brooker lessons were

made easier to absorb by Prof's inspiring stories. His collaboration with Bob Smith was very similar. David gave Bob credit for initiating the AMF course 'Geophysics for Geologists', although the Prof seemed to retain the top billing. The first day or so of the five-day course comprised David telling his stories and stressing the simple, mainly qualitative and dominantly geological methodology for interpreting aeromagnetics (and other geophysical methods). Bob followed through with much more heavy-duty offerings, particularly on the intricacies of electrical and electromagnetic methods. The 600-plus geologists who attended the course learned much from both Bob and David and in many ways the course changed the culture of Australian exploration, creating much better integration of the geological and geophysical disciplines.

David was born and bred in Dalmeir, near Clydebank in Glasgow, but evacuated to rural locations when Clydebank was bombed during WWII. He entered Glasgow University at age 17 in 1943 and, as a late applicant, he was unable to get into the Chemistry class. This proved a lucky break because he chose Geology, loved it and graduated in 1947 with a double honours degree in Natural Philosophy (Physics) and Geology. This was a first for Glasgow University, and it led to a nine-year lecturing position in the new science of geophysics. This period included field surveys on Jan Mayen Island in the northern Arctic Ocean, the Lake Albert Rift Valley in Uganda, as well as various locations in the UK. Much of this field work was for petroleum and mineral exploration companies, thereby initiating David's knack for creating collaboration between industry and academia. He then spent four years with mining engineers John Taylor and Sons, working on mine sites, mainly on the west coast of the



Field work on Campsie Hills, 1949.

¹<https://www.aseg.org.au/sites/default/files/ProfDavidBoyd90celebrations.pdf>

²<https://spaces.hightail.com/receive/cyUau>

³<https://spaces.hightail.com/receive/tRyFv>

⁴<http://www.trevorrow.com/shanti-tribute.pdf>

⁵<https://www.aseg.org.au/events/professor-david-boyd-90th-celebrations>

⁶<https://spaces.hightail.com/receive/G720h>

UK, but also in Cyprus during the EOKA guerrilla activity.

When metal prices dropped, David seized the opportunity to join Hunting Geology and Geophysics. In David's words:

'I worked with them for twelve happy years until the end of 1968 and in the course of the job travelled over Africa, Southern Asia, Australia, parts of Europe and visited North America. During this period I think it reasonable to consider myself to be among the top two or three people in the world interpreting airborne magnetic surveys. They were great years. I usually spent about half the year based in Elstree and half on the job somewhere overseas in a great variety of jobs which offered a great intellectual challenge. I developed the methods which are used throughout the world to interpret mineral surveys over a series of jobs in Ghana, Uganda, Cyprus, Angola and Kenya and Tanzania. The method was developed in Ghana matching the magnetic patterns with the available geological maps including the field maps which in Ghana were very good, and improved in Uganda where I could work with the geologists who were in the process of mapping the area. After that it was a matter of refinement.'

David's work at Huntings was dominated by UNDP jobs and the new 'geological' methodology which benefited greatly from the group's multi-disciplinary team and established skills in aerial photo interpretation. This integrated approach became not only a model for future projects but became a stimulus for aeromagnetic surveying.

'The widespread use of airborne magnetic survey by UNDP had a powerful stimulus from the work that Huntings did in Uganda in 1962/63. The names appearing on the reports were Bruckshaw, Paterson and Tornquist but they learned from me, not the other way round.'

A further indication of his international standing came in 1967 when he was the invited speaker on interpretation of aeromagnetic surveys at the Canadian Centennial Mineral and Ground Water Conference in Niagara. The resulting landmark paper⁷ became the entry point

for many, like ourselves, who pursued careers involving aeromagnetism.

'After ten years with Huntings Jennie said she was fed up; get another job and settle down. This seemed reasonable so I applied for geophysics posts in Leeds and Edinburgh but did not get them, which was fortunate for the job in Adelaide has been very much better for me.'

It seems that the mutual respect between David and Eric Rudd played a key role in David's appointment to the inaugural Chair of Geophysics in Eric's Department of Economic Geology. David arrived in Adelaide with Jennie and two sons James and Hugh and commenced teaching immediately in March 1969. The Adelaide Uni years resulted in a 'breed' of graduates and professional associates that is pictorially expressed his 90th birthday 'slide show'¹ and the accompanying poster³ that we presented to him at the ASEG lunch.



1973 Honours Geophysics class outside the Mawson Labs, Adelaide University.

Outside of teaching geophysics, David became involved in the University's administration.

'Much to my surprise I was asked to be Dean of the Faculty of Science in 1976 and at the end of my term as Dean I was asked to be Chairman of the Standing sub-committee of the Education Committee, and after that, chairman of the main academic committee of the university. In 1980 I was a Member of the Corbett Committee which proposed the creation of a more democratic system of University government and reduced the numerous university committees into one and replaced the two Deputy Vice-Chancellors with members of the new committee.'

I found this work very interesting as it introduced me to workings of the university, which I would not have had anything to do with otherwise. I never thought of myself as much as an administrator but I was obviously not unsatisfactory. During this period I had two spells of about five weeks and some shorter spells as acting vice-chancellor while Don Stranks, the vice-chancellor, was in China. It was fun but enough to convince me that I was better off as Professor of Geophysics. I was amused how possessive you get when you are put in the top spot; I suddenly felt it was 'my university'. In positions of authority I have always felt very strongly that I act for the community and do not use the position to further my own interests; this is not always so in the university.'

His other activities included becoming Chairman of the Animal Ethics Committee at Adelaide University where he had experimenters and animal rights activists working together. This resulted not only in the establishment of the ANZCCART (Australia and New Zealand Council for the Care of Animals in Research and Teaching) but the relocating of the central office of this function from Canberra to Adelaide.

David also had two years, 1986 to 88 as President of the Geological Society of Australia and during this period he used the President's Letter to alert people to the importance of reviving geological mapping in Australia. Around this time he also worked with Reg Nelson, David Tucker and others at the SA Geological Survey on the strategies for 'province scale', semi-detailed airborne surveys. These early efforts bore fruit with South Australian Exploration Initiative, which resulted in an explosion of exploration activity and several key discoveries, and it became a model for future 'pre-competitive' data gathering by government bodies.

David travelled widely as the Professor from Adelaide.

'During the period in Adelaide I visited Japan, Korea for the Asian Development Bank, India for the Department of Science, (several visits Hyderabad, Madras, Bangalore, New Delhi, Baroda and Roorkee and Calcutta) and had study tours which took me to Finland, the USA, Canada, UK,

⁷<https://spaces.hightail.com/receive/HQFhu>

France and Spain. I enjoyed them all but India and Finland were my favourites, India for its sculpture, art and architecture, Finland for its architecture, scenery and geology and both for the people.'

His special link with and love for India was forged by Dr Dasu Atchuta Rao who was aware of David's Indian involvement during the Huntings years, and became recipient of a Colombo Plan post-doc scholarship from 1974–76. David was instrumental in setting up the 'India-Australia scientific and technology co-operation programme (1975)', which helped finance Indian scientists to come to Australia and vice-versa. This programme and Dr Rao played key roles in getting Shanti to Adelaide for her PhD studies. His enduring connection to India is reflected in the publishing of obituaries in three of India's premier geoscientific journals – *The Journal of the Geological Society of India*, *The Journal of the Indian Geophysical Union* and *The Journal of the Association of Exploration Geophysicists (India)*.

Although he retired from the Chair of Geophysics in late 1992, the Prof remained busy continuing to assist in the supervision of PhD students and supporting Irena Kivior, his 'last' PhD student, in her quest to advance the use of potential field data in sedimentary basin exploration and deep crustal studies.

He continued his support for overseas students by initiating a segment on University Radio Adelaide named 'International Links' where he interviewed students, encouraging them to tell their stories. The families of the students in their home country could listen online and share the experience. In 2009 there was a celebration of the 500th programme with David Tucker interviewed by Meg Abbott. In the ten years to that time students were heard from over 50 countries in all six continents and from most schools and departments in the University of Adelaide.

More important is to expand on the man. He liked people and he was wise. He saw the big picture very clearly, and was always bold enough to chase the 'impossible dream'. He lived life with a smile on his face – in fact his nickname at school was 'smiler'.

His offices, at the Uni and at home, were notoriously messy and he claimed to be disorganised and a poor manager of his time – the quintessential 'absent-minded Professor'. Absent minded he may have been, but when it counted he was sharp, accurate and astute.

His life away from the profession was about family and was not always plain sailing, but the warmth of his memorial service, driven by children Hugh and Sarah, gave those of us who knew him closely in a professional sense, but rarely had insights to his 'personal life', some new gems. He was a capable pianist and cellist. The very fitting finale to his memorial service saw his close colleague Peter Brooker deliver a moving rendition of Beethoven's 'Moonlight Sonata'. He was a keen student of philosophy – two of his recurring sayings were DesCartes' 'accept nothing that you have reason to doubt' and Einstein's 'make things (solutions, explanations) as simple as possible, but no simpler'.

The Prof was an active member of the Presbyterian Church, but not especially religious. He enjoyed good wine, beer and malt scotch whiskey and was ever available for a 'lunch'. His daily regimen always included walking and many of us will recall trying to keep up with him – his legs were long and his stride was unwavering.



Walking and enjoying the rocks at Kata Tjuta, July 2016.

His daughter Sarah took him to Uluru for his 90th birthday – according to Prof, day one was the warm up – only 8 km – next day was the main event of 11 km!

Those of us who knew him well will miss him sorely, but we can rest assured that his influence will remain strong and that the products of his doctrine will likely perpetuate his way of attacking problems and life in general. His 'way'? – optimism, enthusiasm, wisdom, energy, and determination – and, above all, (attributed to his first boss at Huntings, and relayed to EVERY student)...

'If you don't know what to do, do SOMETHING!'

We conclude with a very appropriate Persian proverb:

'he who knows, and knows that he knows is wise, follow him'

David Tucker and David Isles
dhtucker@bigpond.com
disles@redgatevista.com.au

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⁸<https://spaces.hightail.com/receive/O1Lcb>