

## Ted Lilley – My Mentor

I was so lucky to find myself in Australia meeting Ted Lilley for the first time at ANU in January 1976, where I was about to start a PhD program under his direction. I wasn't really looking to do a PhD - it just sort of happened. Mainly because another of my mentors, Bob Uffen, who I happened to have as a geophysics prof at Queen's, knew that I was vaguely interested in carrying on as a graduate student (mainly to delay having to enter the workforce), and he just happened to hear from Ted who was his former student at Western (via the pre-email letter method), that Ted was looking for a student to help him carry out a large research project in central Australia. Not knowing anything about anything, but just liking the sound of a "large project in central Australia", and especially as it came with pay - a scholarship - my wife Linda and I embarked on a week's long, island hopping trip across the Pacific to Canberra.

Looking back, I couldn't ask for a better mentor and teacher. I learned so much from Ted - how to write for starters. He wanted all of the PhD dissertations under his guidance to be readable, just as all of his 156 scholarly publications are readable. Secondly, the importance of painstaking care and attention to detail when conducting scientific investigations: experimentation and especially field studies. This is particularly critical when dealing with 21 of the exact same instrument, 21 times in 21 separate locations, and expecting all to work perfectly. (I later had to deal with 30 of these Gough-Reitzel magnetometers, on my own, so the lessons learned were invaluable).

I remember one incident when we were about to start our trip around central Australia in a small plane to service the instruments. Ted painstakingly laid out every single piece of equipment and supplies on the tarmac beside the plane at Alice Springs, and weighed each and every item. Tallied it up and then in consultation with the pilot and myself, weeded through every item to decide if it was really necessary or could be left behind. All to save a little weight, for more fuel. There is also how Ted, as airplane navigator in pre-GPS days, watched the Simpson Desert sand dunes go by, one by one, following along on a detailed topo map to help guide us to a specific clay pan in the middle of the desert. He told me that as long as you keep up with where you are relative to the dunes, you can navigate. But as soon as you lose your orientation, it is almost impossible to figure out where you are. A valuable lesson.

Another lesson I learned from Ted is the importance of communicating the science of what we are doing to people who have never heard of it before, in plain simple English that anyone can understand. He did this over and over, again and again, to everyone we met, especially to the folks on cattle stations, where we wanted to install a magnetometer next to the station's airstrip. I remember one incident at a glider club's airstrip in western Victoria, which happened to be having their AGM when we arrived to ask permission to install a magnetometer. Ted ended up giving a half-hour lecture to this room full of fascinated glider pilots about electromagnetic currents in the ionosphere and in the earth. I have tried to emulate Ted's skill for doing this, throughout my own career. Following the 2019 AEGC conference in Perth I went up to Exmouth to go scuba diving off the Navy Pier and on the way back to Exmouth, after passing the very prominent naval communications VLF antenna, I found myself giving a lecture to the bus load of tourists, about what it's for and why it's incidentally so important for mineral exploration.

Then there are the quirky and quaint things about Ted's character that have stayed with me. For instance, Ted's insistence that we lodge at the local, historic (and often somewhat run-down) hotel, in the centre of a remote outback town, rather than the newly built motel on the outskirts. I was dubious at first, but I met some wonderful people and have some amazing memories from the experience. Throughout my field work career, I have tried to do this whenever the occasion arose. He also taught me that setting up our own lunch or tea stop, off the road, complete with folding chairs and an organized tucker box, is far better than going to a restaurant or pub for lunch. Some of this quaintness was actually disguised frugality - after all we were on a limited research budget from ANU.

But the frugality / quaintness went over the top with Ted's idea that the perfect supper at camp, consists of heating up canned beans and canned veggies, in the can so as to avoid cleanup. We were camped beside an airstrip at a cattle station, going through Ted's supper ritual, when the station manager drove up to see how we were fairing. He saw the cans heating beside the fire, slowly shook his head, said "I'll be right back" and hopped back into his truck. A few minutes later he comes back with the two most beautiful steaks I have ever seen or eaten, and said "Here, you'll like this better."

We didn't always camp out. Some cattle station owners and managers insisted that we stay with them at the station house. I met some wonderful people this way, and heard some amazing tales. It didn't take too much of this hospitality to convince Ted it was better than camping out every night. So we loaded up on good wine as hospitality gifts, and Ted organized toys and children's books to give to the station kids that always seemed to be around. I heard later from these station folk, when carrying out my own follow-up study, that they looked forward to these visits from Professor Ted even more than we looked forward to them.

Besides the geophysics, Ted went out of his way to teach this kid from Canada what Australia is all about. Campfire songs, the rules of Aussie Rules Footy, Australian cricket superiority (more than once, after Ted introduced us as Dennis Woods and Ted Lilley, the person would say "Dennis Lillee, the famous Australian bowler?" ha, ha). Australian nature, history, culture were all daily lessons. We took The Ghan from Alice Springs to Adelaide, in part to save the truck and the magnetometers from the terrible dirt (bull-dust) road, but also I believe just so that I could savour this outstanding bit of Australian history. Sailing tips - Ted did the Sydney to Hobart Yacht Race in his youth and told me about it many times. How to improve at tennis - Ted would regularly beat me on the courts beside RSES.

My extensive slide collection from my days at ANU are presently being digitized. But below are a few photos sent to me by Jan Styles, our bush pilot on the central Australia project.

Along with photos, lessons learned and fond memories last a long time. Vale Ted Lilley.

Dennis Woods

Surrey, BC, Canada



Ted and his able bodied (then anyway) assistant installing a Gough-Reitzel magnetometer. Note Ted, ever the scientist, in his lab coat in the heat, while I'm half naked.



Ted and Jan Styles, bush pilot, at an installation in the middle of Simpson Desert.



Tea time (an RSES tradition transposed to the outback) for the benefit of Dennis, still dressed appropriately, Jan and Ted, with lab coat close at hand on the chair back.



Susie and Peter McNevin, station managers at Davenport Downs, with Jan and Ted, still in his lab coat. My wife, Linda, and I visited Susie and Peter a few more times during my second project in western Queensland. We received unbelievable hospitality over quite a few days at this cattle station, including going for a swim in a Diamantina River billabong.