

From the Kitchen

22 February 2012



I took the dogs out for a walk shortly after sunset and was awed by the beauty of two bright planets in the western sky: Venus close to setting and Jupiter some thirty degrees higher up. The horizon was suffused with bands of deep orange and a strange green.

When I was eight, we moved to live on a farm in NSW. I occasionally witnessed the enormous bowl of the night sky with its millions of points of light and the milky smudge that looked to me as if someone had knocked over a can of paint. In the country, away from artificial lights, there is enough starlight to cast faint shadows. It is truly wondrous. We also witnessed the passage of Sputnik in October 1957 – the first artificial satellite, launched by the Soviet Union.

The uncountable number of stars and the point of light that travelled through them (or so it seemed) set me on a path of trying to understand the three-dimensional distribution of it all and its enormity. I am still on that path.

At one house I rented in the hills east of Melbourne there was a trampoline outside. I would often lie there on the sprung mat in my sleeping bag and watch the sky for hours. Apart from the slowly-moving firmament, there would be the faster satellites tracking across the sky and the occasional, spectacular shooting stars. Again, I would play in my head with the three-dimensional arrangement of it all. I found it easy to see myself, a tiny mote, on this planet as it rotates and makes its steady way around the sun, taking Luna with it; the sun and its neighbouring stars (the stars we see as individuals in the night sky) travelling around the centre of our galaxy; the galaxy floating through space, gravitationally aware of other galaxies ‘nearby’.

In 1987 a bright star suddenly appeared where none had been visible before. This was the last hurrah of a dying star in a ‘cloud’ of stars that accompanies our galaxy on its journeying – one of the two Clouds of Magellan. This was a momentous event to me, because such a visible supernova last happened in 1604. Mind you, the 1987 event didn’t happen in 1987, but had happened around 160 000 years earlier. It took the light that long to reach Earth. It got me thinking about time and how we measure it.

I remember when international telephone calls had to be booked in advance. When the call was finally connected, there was usually a delay between the end of one person’s words and hearing the start of the other’s – the speaking and the hearing did not happen simultaneously. Such delays are now rarely experienced, as everything seems to be ‘instant’.

Our atmosphere ‘bends’ time: the setting sun we see sitting just on the horizon has already set minutes earlier – it is an illusion. And the light we see from the sun left the sun eight minutes earlier. The light from the nearest star to our solar system takes more than four years to reach us.

The ‘here-and-now’ is very different from the ‘there-and-now’. Can we confidently talk about simultaneous events?

I used to be fascinated, as a child, by the delay in the sound from lightning. If I closed my eyes, my experience of the event was limited to what came to me after the event. Or was it?

This is similar to, though on a very different scale from, the star that exploded 160 000 years ago.

If I hear two simultaneous gunshots, but one comes from two kilometres away and the other only twenty metres, are they simultaneous? They are in my experience, but won't be in the experience of an auditor who is equidistant from both guns. If my only evidence was the sound, how could I know it was not so?

When I have looked at the night sky through a telescope, I have seen galaxies like our own, each containing billions of stars. We are told that there are billions of these and, now, that there are planets orbiting many of them. There is much speculation about the possibility of life on these. Even if there is, does it make any difference to our lives? It may change the way we think about ourselves and our tenancy of this planet. We are not likely to commune with such extra-terrestrial life, even if travel at near the speed of light were possible – time is against us.

Things don't happen on a human time scale when you move away from the solar system. Even *in* the solar system many things seem to move on a different time scale. Jupiter takes almost twelve years to go around the sun; Saturn takes more than twenty-nine. Many periodic comets (such as Haley's) are visible to us only once in a normal lifetime. Most of what we see out there appears to us to be static, though it certainly isn't.

As I headed for home with the dogs, I saw bright, red Mars rising above the horizon – three familiar heavenly objects visible at once. At least they are on a scale I can grasp without much effort.