***From the Kitchen***

17 March 2010

There are still people out there who do real science: they observe something, wonder why it happens, form an hypothesis, test the hypothesis, revise the hypothesis and retest it, etc.

I was privileged on Friday night to be in the audience listening to Jean Munro [1] on stage. With her pastel-coloured, frilly dress, her coif and her very English accent, she could have been about to hold forth on the joys of growing begonias. Instead, she was there to talk about her work on immunological vaccines for allergies, including the use of metal trays and tea strainers. Very English. She observed, questioned, experimented, observed, postulated, experimented, observed … She perfectly described the process of rigorous science.

In juxtaposition, we are subjected to much nonsense on a regular basis. Metro trains (running the Melbourne train system) continues to have trouble with its Siemens trains not stopping at stations. They say it has to do with poor traction on the rails. To overcome this, they only run these trains with six carriages, never with three. This "increases the weight of the train and gives better grip for the wheels on the track". Really? Each carriage has the same number of wheels – you could link fifty-one carriages and the weight per wheel would be unchanged. However, they could squeeze a hundred people into each of the six carriages and increase the overall weight of the train by some thirty-six tonnes.

The CSIRO also says some strange things. It and many other science organisations have been asking us to take climate science and global warming seriously, and we should. But, while saying that there is irrefutable evidence of average temperatures having increased over relatively recent years, the CSIRO Chief Executive, Dr Megan Clark, recently said that they "are about 90% confident that these things [warming and human activity] are happening at the same time and are linked". [2] The "about 90%" sounds like conjecture to me, not science. Why not say that the evidence points increasingly strongly, or overwhelmingly, to a link with human activity and that we cannot ignore this, because if we do and the link *is* real, we are likely to extinguish ourselves along with most other life forms. Plucking a certainty figure out of the (warming) air does nothing for credibility and credibility is essential in this area, because it is only through increased public concern that politicians are going to do anything meaningful.

We also need to be careful to not dismiss out of hand what sceptics have to say. I'm not talking about bigoted deniers (often with vested interests at stake), but true sceptics – people who question a hypothesis and/or data and have good reason for doing so. Sceptics are willing to debate and to bring forth alternative hypotheses. Such debate amongst proponents of a hypothesis and those sceptics, helps to refine the ideas and will more quickly lead to workable and useful theories, which in turn will lead more quickly to useful behaviour and action. That is part of the scientific method.

We all use this 'method' in our day-to-day lives. We do things on the basis of what has worked before. If one day something goes wrong, we ask why and, on the basis of the answer, modify our behaviour. If, on the basis of finding out why something when wrong, we continue with our behaviour unchanged, we could be considered crazy. Even more so if we don't even ask the relevant questions.

Albert Einstein is often quoted as having said that insanity is doing the same thing over and over and expecting different results. On this basis we are all insane some of the time individually and probably much of the time collectively. We see this most clearly in the behaviour of governments and corporations. Governments believe that promulgating tougher laws will change people's behaviour. The finance sector believes that 'next time' people's innate belief in doing the right thing will avoid another financial fiasco. Economists regard their body of learning to be a science but much of economic theory is based on psychology. In Australia, psychology is often taught at universities in the Arts/Humanities or Commerce faculties and the theories of human behaviour are still often modelled on the behaviour of rats and other small creatures. Universities also teach Political Science (in the Arts/Humanities or Commerce faculties), but how much of a science is it? Is the scientific method rigorously, if ever, applied?

Science is usually concerned with universal principles which are believed to be always true, everywhere. Politics is more concerned with short-term phenomena because of the wish to be re-elected or, sometimes, to stay in power at all costs.

With the apparently inexorable warming of the Earth, we *need* to apply rigorous science and stop playing politics and economics, or both of these will become irrelevant – after all, they are useless to those species which are likely to survive us.

1. See: www.breakspearmedical.com/files/staff.html
2. ABC TV 7 pm News, 15 March 2010.