Perspective

A newsletter for widening your point of view

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Richard Bach, in his book *Illusions*, states a handy aphorism: **Perspective – use it or lose it**. This periodical – distributed by Rob Greenaway & Associates – shares amongst recreation and tourism management professionals, and others, several tools and concepts which will help exercise your perspective.

This edition considers maths. Only a little. I did surprisingly well in School Certificate maths. But early in the first term of the sixth form our maths teacher pointed out that it was not too late to ask for a recount.

Starter for ten

I've decided that my maths teachers in secondary school lacked imagination. I went to an all-boys college. If we teenagers knew that the word sine – as in cosine, tangent and sine – was derived from the Latin for *sinus*, meaning curve, and particularly the way a toga drapes over a woman's chest, we might have paid more attention in trigonometry.

Every facet of maths seems to have the potential for similar, albeit less gender-specific, story-telling. Alex Bellos in his book *Alex Through the Looking-glass*[1] does a great job of making what I recall as a grinding abstract slog surprisingly fascinating and relevant.

For example, I knew that trig points – those wee black and white towers atop the odd hill – were survey marks and had something to do with trigonometry, but never realised you could draw a scale map of all India if you knew the distance between only two of them (and the angles between them all).

Maths is actually interesting again. For example, which part of a car travelling at 95 km/h is always stationary, and which part of a train going at the same speed is always travelling backwards? Think cycloid if it helps. Answer overleaf. ❖

Natural frequencies

'Natural frequencies', in the context I'm discussing here, are not something you'll hear at WOMAD. Ben Goldacre, in his excellent book *Bad Science*[2], defines them as 'concrete numbers' used to describe a phenomenon. Concrete numbers, according to my dictionary, exist when they refer to a real thing – like seven snapper. Concrete numbers are natural frequencies, and I'm not sure why we need two terms. And I'm not sure if the term 'natural' is useful. Let's explain.

I'll admit to often having trouble when trying to describe the difference between two figures. Fifty is half of 100 – that's easy. Two is a 100% increase on one. Or is it double? Or is it just one more? If 100 people visited the park last year and one was unhappy, that's probably a fine performance. But if it's two this year, well, is our performance 100% worse? Yes, I suppose so. But if 91 were unhappy last year, and it's 92 this year, then it's only just over 1% worse. Excellent.

That's pretty simplistic stuff. Goldacre gives more leading examples using medical data, and how your choice of measure depends on what you are selling. Perhaps the risk of a heart attack in your fifties is 50% greater if you have high cholesterol, while the extra risk of having a heart attack is 2%. In truth, of 100 men with normal cholesterol (whatever that is) four will be expected to have a heart attack; whereas of the same number of men with high cholesterol, six will be expected to suffer the same fate.

I once had a cholesterol test, and was told to go home and sort out my slightly elevated levels. I did nothing different. If anything, I had a bit more cheese than normal. When I had my second test I was told, "Well done, you've made a great change." Note: this is not medical advice. If it was, perhaps I could say that there is a medication out there that could reduce my risk of heart attack by half (or 2%, depending on whether I'm selling a product or reporting a medical effect).

There are three different methods of describing the same data in Goldacre's example. The 50% change is a 'relative risk increase', the 2% change is the 'absolute risk increase', and the concrete number (two extra infarcted sausage-snaffling men) is the 'natural frequency'. Natural? I'm not sure I get the terminology, but the differentiation is useful.

Goldacre states that 'natural frequencies' are "the only sensible way to communicate risks." He offers a checklist to help writers when relating medical data:

- Describe who you're talking about (such as, men in their fifties)
- State the baseline risk (four of these men out of 100 will have a heart attack over 10 years)
- Describe the additional risk (two extra will have a heart attack in that same period)
- State the cause (a normal dose of something, a trial dose, or another medical adventure).

The corollary is that we should seek these information snippets when reviewing the promotion or reporting of any phenomenon. A newspaper headline which reads "Disease Risk Doubles!" is immediately suspect.

Of course, there is always more to it, since we also need to understand the quality of the base information. Ben Goldacre's favourite line appears to be, "I think you'll find it's a bit more complicated than that." But if a change between two pieces of data is only presented in percentages, then we should be immediately suspicious of a marketing or ideological agenda.

The message for me is to be clear about what data actually means and to clearly differentiate between the relative and absolute change, and to think about how change can be described in a concrete manner. Just saying a difference is 'statistically significant' is pointless, unless substantiated by statements of relevance and importance. ❖

[1] Bellos, A. 2014. *Alex Through the Looking-glass - how life reflects numbers and numbers reflect life*. Bloomsbury

[2] Goldacre, B. 2008. *Bad Science*. Fourth Estate

RG&A, PO Box 358, Nelson 7040 Ph 03 539 4335 rob@greenaway.co.nz
www.greenaway.co.nz

Folle of Oromo answer the tuba

The *folle* were hard-working young men of the Oromo tribe, tasked with protecting cattle and clan around the Horn of Africa. While they worked according to the authority of clan elders (the *tuba*) they had their own age-based form of governance, as did other age groups in the tribe.

According to Kevin Shillington in his *History of Africa*[3], Oromo society was organised into five age-sets. Nothing odd there. The Masai did a similar thing, but with only three age-groups (children, young adults and elders) with rites of passage between each.

The interesting feature of the Oromo system was that, while the clan was effectively presided over by the *tuba*, each age-set democratically elected its own leader. As Ben Goldacre says, it's probably more complicated than that, but I quite like the concept of a political system based on age-representation. Would more people vote if they could choose only from amongst their temporal peers, and would they get better representation in parliament?

Elections could be run as a form of proportional influence where, if you were a Masai, you'd get three votes, but only the one for your age group would be worth the full quid. Your votes in other age groups would be worth, say, 10% of their face value.

Earlier this year I was at our first 'meet the teachers' session at Nelson College for Girls. I had the pleasure of listening to six year-13 women give short speeches about their leadership roles at the school. There are individuals of extreme quality on the way. All wind to their leadership sails. ❖

Low-hanging fruit

One of life's greatest pleasures is stepping outside to pick and eat naturally-ripened fruit. On our quarter-acre in Nelson we have a six-month supply, starting with strawberries, followed by plums, pears, peaches, grapes, figs, more pears, feijoas and persimmons. The avocado fruited for the first time last summer, so this spring we'll launch our picking season a little earlier.

I'm comfortable arguing that this local bounty has made me somewhat of an expert in picking low-hanging fruit, and I have learnt a lesson that I am sure is relevant beyond horticulture.

Don't pick the low-hanging fruit. Pick the fruit that are most difficult to reach from an easy position. If you go for a low-hanging plum, the branch loses weight and rises. The total number of easily-harvested fruit is thereby diminished as the mid-range plums move out of reach.

Apply this to a budget. Should you prioritise spend on what your budget can ultimately stretch to, or should you focus on cheap targets? Will you get a better outcome by using skills and expertise on a more attainable but difficult task? Or should you spend time on something simple, leaving an inadequate amount to do anything else? Is some other agency better positioned to get the lowest fruit?

Or do you need a ladder? I'm sure this analogy could be turned into another pointless 350-page missive by Malcolm Gladwell[4]. ❖

What have the Romans ever done for us?

Why do we persist in using Roman numerals? They might look cool (albeit not as a tattoo); but more than 2000 years have passed since Arabic numerals come out of India, and they seem to make a lot of sense. India still stands. How's the Roman Empire doing? (That's a tidy comparison if you're not too picky about historical fact.)

The other day I was reviewing a document by phone. I had a copy on-screen and my colleague had a printed version. We had the inevitable toing and froing over page numbers; the difference between those on the printed page and those on the digital document page count. When my colleague suggested we look at page 64, I could not use the key command 'Ctrl G' – 'go to page'. I had to fiddle about and find that it was the 72nd page in the report.

How many times have you printed selected pages of a document and entered the page-range for the hard copy, and wasted piles of paper? And referencing page numbers. This looks fine: p45. This looks a bit odd: pix.

Here's a solution. Let's agree that Roman numerals have had their day. Using them in the preface of a document is just fiddly. Page numbering on any modern document should start with the cover as page 1 and go from there. And no separate numbering systems for chapters. Just page 1 to 323. It's a digital world. Go with it. ❖

Stationary and going backwards

The answer for the car is the bottom of the tyre. It's always stationary. It might take a bit of thought, but consider that the road is not moving and the bottom of the tyre is in contact with it. The speed of the vehicle is irrelevant. For the train, the bit going backwards is near the bottom of the wheel – it's the bit just behind the lowest point. The difference between the train and the car is the design of the train wheel. The latter has a flange which extends below the rail to keep the wheel on the track. While any point on the edge of a car tyre traces a cycloid, the train wheel flange traces a prolate cycloid. It's not a medical condition. Google it. Or better still, read Bellos. ❖

For Your Interest

I had expected this year to be a little quiet, with the reduction in energy-related jobs. But there's been no let-up. Work continues on consenting the remains of the Rena wreck. We have penned words for the proposed Christchurch Adventure Park, are assisting Fulton Hogan with a reserve exchange, working on the Waitaha hydro project for Westpower, just starting a recreation review for a major infrastructure project in Wellington, and a consenting project for Silver Fern Farms, and are assisting LandSAR and NZSAR with their national Wander Services work (tracking, for example, lost dementia patients who wear transmitting pendants).

Over summer we completed a user survey of 15 marine structures for the Christchurch City Council. In the past, I have almost always used tertiary students as summer staff for administering questionnaires, and while some have been excellent, it's often been a challenge to balance their busy social lives with work. This time we used what the Oromo might call the tuba of the community – who have no less of a social life, but have more advanced independent organisational skills.

Marine projects remain a big part of my workload, with the EPA hearing for Trans-Tasman Resources' iron-sand mining application, an appeal on a marina on Waiheke Island, a dredging proposal for Lyttelton Harbour for the Lyttelton Port Company, and recreation and tourism planning work for the Port's earthquake recovery plan.

Locally we've been working with the Tasman District Council on an open space strategy, and a needs-analysis for a large reserve for the Nelson City Council with Dave Allan of Global Leisure. Dave has taken on the Global Leisure Group brand and company fully, although we will still do some joint work.

[3] Shillington, K. 2012. *History of Africa.* Palgrave Macmillan

[4] See: www.malcolmgladwellbookgenerator.com