
Cycling cultures and the mismeasurement of cycling

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Synopsis

There are more pennyfarthings in history books than all other bikes and, in popular imagery, all cyclists wear Lycra.

It is harder to see our own misconceptions, which may be more damaging.

Most views centre on middle-class cycling culture but perhaps most cycling in Australia in the past century was transport by working people.

Government policy has also centred on middle-class recreational cycling. Despite boasts of increased levels of cycling throughout the 1970s and 1980s, the decline in working-class cycling might have exceeded rises elsewhere.

Mismeasurement has led to misallocation. It has also led to inappropriate cycling infrastructure in older industrial areas.

Better data on cycling is needed but data is only as good as its context. "Scientific method" can narrow our view, so we risk learning more and more about less and less. The illusion of scientific objectivity can hide prejudices and assumptions' such as have hidden large segments of cycling from those who seek to promote it.

Many cultures of cycling lie in the anecdotes of all the people who cycle - or have cycled. It is urgent to collect those anecdotes.

It is through culture, not figures, that we create better ways forward.

Understanding history help with rebuilding and sustaining the cultures of cycling.

Introduction

Twenty years ago, two men come into R.L.Bates bicycle factory in North Coburg; one with a bicycle, one without.

Both were dressed in the traditional clothing of the Australian factory worker; trousers with wide cuffs, shirts with the sleeves rolled up and the collar open and strong leather shoes, both clean shaven and severely short-haired.

Both men carried Gladstone bags, too, but one had his sitting on the upturned handlebars of his bicycle, while the other had no bicycle.

They came in out of the harsh sunlight into the roughly walled-off area that comprised the shopfront of the factory and the man with the bicycle spoke to the then eighty-year-old Rupe Bates.

The man's bike was a traditional Australian roadster: yellow in colour, with 28 x 1 3/8" steel wheels with a coaster brake in the back wheel, bolted-up seatstays, a springtop carrier and white-painted mudguards. It was in fine condition but already old-fashioned in those days of ten-speed derailers and early mountainbikes. After some discussion, with the man indicating his companion several times, Rupe Bates wheeled out - from the collection of reconditioned bikes in the room - a shiny, new-looking red bike almost identical to the first man's bike. After further discussion and some adjustment to fit, the two walked out and rode away; each with his own bike, each with his Gladstone bag between the grips of the handlebar.

Deep inside the factory, talking to Norm Bates as he built my touring bike, I could hear none of the words but saw it all as a wonderfully luminous pantomime.

It was also a revelation because I thought - as most of the "cyclists" of my acquaintance thought - that such cycling was a thing of the distant past.

The Bates factory has gone now, such Australian-built bikes are only a memory and few people ride now to the few factories remaining in the former industrial suburbs of inner Melbourne. For many decades, though, big bikesheds within factories and schools, and great crowds of riders leaving the factory gate or the schoolground was the picture of bicycle commuting in Australia. Well, that plus a few racers or ex-racers who rode really high-quality racing bikes over relatively large distances to work or in training.

Surveying bicycle usage

It is likely that the majority of cycling done in Australia in the past 125 years was for transport by working people. As Jim Fitzpatrick has highlighted (Fitzpatrick, 1980), Australian working people were big users of bicycles from very early on, although this was primarily a rural phenomenon for some time. For rural working people whose only practical means of travel from job to job was to hump a swag and walk for tens, hundreds or sometimes even thousands of kilometres, the bicycle was a godsend, even at its then-considerable price.

Cycling came to the industrial areas sometime later. With compact road systems and with most people working in the same suburbs as they lived, people walked to work until the prices of new bikes fell a long way and larger numbers of secondhand bikes became available. Then great numbers of people started riding to work.

What we see in both history books and in government policy, however, is primarily middle-class recreational cycling: touring and promenading in parks.

History can be like the rear-view mirrors on a big truck, that we use to help position the truck on the road. We look behind to judge our way ahead. History is indeed bunk - as Henry Ford said - if we relegate it to the past and fail to be guided by it. The problem with bicycle history in Australia, and hence with bicycle advocacy, is that our rear-view is dim, narrow and strangely distorted.

Two of the problems of estimating cycle use in Australian cities in times past are that those taking the survey tend to be trying to prove their own point, and that - as predominantly middle-class people - the surveyors tended to neglect the industrial suburbs. This selectivity seems to have been so marked that we must rely heavily on anecdotal material to illustrate the problem, but we cannot quantify it to any meaningful degree.

Us and Them

The Toorak matron drinking tea with her cleaning lady, or the squatter talking with the shearer, does not make Australia an egalitarian society. The myth of equality has long served to hide deep divisions.

It seems to be that, when middle-class people started cycling again in significant numbers from 1970 or so, politicians and planners marginalised working-class cycling. The image of the industrial worker cycling in overalls and boots, with the Gladstone bag on the handlebar, was a ghost to be exorcised. The new cyclist rode a 10-speed "lightweight" and wore bright, fashionable cycle clothing.

Survey methodologies designed to measure the rise in middle-class cycle use missed working-class cycling completely. Policies aimed to assist cycling envisioned only middle-class cycling and ignored - or even discouraged - working-class cycling.

I shall concentrate on four particular examples: The 1975 Melbourne Bikeplan study, the social impact of helmet mandation, the use of sales figures to estimate bicycle usage, and the imposition of inappropriate bicycle infrastructure on the old industrial suburbs of inner Melbourne.

Melbourne Bikeways Plan study, 1975

The 1975 Melbourne Bikeways Plan study, prepared by Jeremy Pike and Tony Conquest at Melbourne University to assist the Department of Youth, Sport and Recreation in funding bicycle projects at the time, stated outright that: "Cycling seems now to be predominantly the activity of the comfortable middle class" (Pike, 1976, p.20). It contended that usage was very high in middle-class suburbs such as Sandringham and Brighton but very low in the inner, industrial suburbs such as Brunswick, Collingwood and Fitzroy.

Pike's and Conquest's "index of bicycle usage" was based entirely on cycle trips to school and the numbers of bicycles parked at railway stations. This essentially measured only the modes of cycling in the middle-class "dormitory" suburbs and ignored the ways people lived, worked and rode in the industrial suburbs.

Anecdotal sources suggest that, within the industrial suburbs, levels of local riding were actually very high for both children and adults. This was especially to places of work - where employers often had large cages for all their workers' bikes - but also for visiting friends and even for going to dances and such. Schools were very closely spaced, so there was little point in cycling and bicycles were too expensive to risk parking at school, anyway. There was no point in riding to the railway stations.

They are so closely-spaced that most are a short walk from most parts of the suburb, and most workplaces were only a short distance further. There was (and still is) also a major problem of bicycle theft from railway stations, and railway transport was relatively less affordable than in the middle-class suburbs.

By accident or worse, such erroneous data was precisely what the mid-1970s politicians wanted: a reason to restrict bicycle facilities funding to the marginal electorates. The industrial suburbs were even more solidly Labor voting then than now.

Honest scientific mistakes

It is important to clarify that data of Pike's and Conquest's Index was quite "scientific", diligent and honest - as far as we can tell. (The report also included data from a household survey that suffered from non-randomness of the sample, but that problem does not influence the data we are looking at here).

We can never measure all of the cycle journeys in an area; we must sample. Pike and Conquest devised a sampling parameter that seemed to reflect well the kind of cycling they knew. They are unlikely to have seen much cycling in the industrial suburbs because their counts were best done in the middle of the working day, when the bicycles were standing still. They could not then have seen the floods of bicycles from the factories at knock-off time, nor would they have seen any social or recreational riding. It is apparent that their academic supervisor did not see any fault in the methodology either, or the report would not have the name of the university on it.

The core problem was that Pike and Conquest deconstructed the story before getting the story right. They began measuring before they knew what to measure.

With the great luxuries of hindsight and more time to contemplate, we can see that Pike and Conquest might have spent more time establishing the fullness of what they were studying before devising the sampling protocol. Their reality, however, is likely to have been a high study workload, limited time to spend in unknown areas, a certain wariness or fear of the industrial suburbs, and little opportunity to talk to local people or to listen to their stories.

This reflects a problem at the core of our "scientific method". We break reality into pieces small enough to comprehend. The more broadly we look, the less likely we are to derive statistically significant results. Thus we narrow our field of view, and so risk knowing more and more about less and less. We risk, too, thinking of the whole as no more than the sum of its parts as we see them. (See appendix 2 for more dissertation on this)

Sales data

The Melbourne Bikeways Plan cited another data source that mismeasured working-class cycling in its own way. To look at bicycle sales in Australia over the years, you could easily believe that cycling was more popular in the 1950s than it was in the 1930s or 1940s. Pike and Conquest seem to have read it this way. At least since 1930, sales of bicycles have continued to rise, almost independent of the usage of bicycles in Australia. The estimated number of bikes less than ten years old in Australia in 1970 was around twenty times the figure for 1930 although the total number of bicycle trips was probably lower (despite population growth and increased overall rates of travel).

There were more bicycles sold than cars in Australia in the past year (2004), and the rate of bicycle sales per capita in Australia is higher than in the Netherlands. The ownership is

almost certainly higher in Australia, as well, because few Dutch people have room to hoard unused bicycles, but bicycle usage is perhaps 90% lower in Australia. A serious problem exists in that sales data is almost all we have from which to infer usage over much of the twentieth century in Victoria.

The particular significance to this paper is that the industrial areas where I contend that rates of commuter cycling may have been highest - at least from the 1930s until the 1960s - the levels of ownership may have been lower. The sales of new bicycles would have been lower still because we can surmise that riders would have been less able to afford new bikes. There were many bike shops in areas like Brunswick and Coburg but it would be fair to hazard that many were there mainly to look after bikes that were in use and that they some did not sell new bikes at all.

However strange that may sound now, that was still the case for many of the 100 bicycle shops that operated throughout Amsterdam, Netherlands, in year 2000. (De Lange, 2000). Another possible parallel to modern Amsterdam is that few new bikes are bought in that city: a high proportion of the bikes in use are very old and have drifted in from outer areas where big showroom shops sell bikes by the multitude. It is entirely likely that second-hand bikes drifted into inner Melbourne in the same way, from wealthier suburbs.

In 1983, R.L. Bates Pty. Ltd. in North Coburg were selling several restored bicycles (such as described in the introduction to this paper) for every new one they made. This was after they had ceased wholesale manufacture but, even at the height of production, they appear to have been restoring bicycles as well, just as did a lot of suburban bike shops.

The sales figures are robust and "objective" data. The problem is when that data is used to infer unknown amounts such as bicycle ownership and usage. Even worse, if we try to build a story (or "anecdote") from the inferred data. Anecdotal evidence is far more reliable than anecdotes constructed from inadequate data.

Other measures

It is worth mentioning in passing that another means we might use to estimate cycle use - that of analysing photos - generally underestimates commuter cycling by working people for several reasons:

- photos tended to be made when the light was best, but people cycle to work when the sun is low in the eastern sky and they knock off when the sun is low in the west,
- the period of highest commuter traffic used to be much briefer when there was no flexi-time nor staggered hours,
- most photographs were intended to illustrate other subjects - buildings, roads, commerce and so forth, so most people actually avoided photographing during peak traffic times.

Yet another key data source from an earlier era, the traffic counts into the Melbourne CBD (Central Business District) from 1924 to 1950 (Pike, 1976) will have missed much of the cycling by industrial workers. Most of that traffic was within suburbs or between adjacent suburbs such as Brunswick and Coburg. It was the clerks, administrators and salespeople who commuted in from the mostly residential suburbs of the south and east who will have comprised the bulk of commuter traffic to the CBD - even more than they do now.

Helmets and social equity

It is believed widely that bicycle helmets reduce the risk of brain damage in bicycle crashes. The data, however, is very thin even now, and was skeletal at the time of mandation of helmet use. Bruce Robinson and Dorre Robinson have both presented good analyses of these issues and will be familiar to most readers from the Velo Australis conference of 1996.

A key problem is the use of limited data on head injury to infer data on brain damage - the real issue of concern. The two parameters are far less-well correlated than is believed widely, and Dorre Robinson's 1996 paper is a good analysis of that.

On the scant evidence available, helmet use should never have been mandated. Another issue that raised far too little concern at the time, though, was that of social equity. We might argue that helmet mandation hastened the decline of working-class commuter cycling after decades of its being ignored in favour of recreational cycling in middle-class suburbs.

At the time of mandation, the cheapest helmets cost around \$50 and none was available second-hand. Even one helmet was a major financial imposition on a low-income family. Helmets for four or five children, and perhaps for the parents as well, would comprise the wages of a week's work, or many months of discretionary income for a working family.

None of the data collected by either the authorities or cycle activists touched on this issue. The problem was raised in the period leading up to mandation in Victoria but was trivialised by Bicycle Victoria and by VicRoads and was shrugged off by Transport Minister Peter Spyker. It seemed not to be callousness on the part of the lobbyists and the bureaucrats; simply a total lack of awareness that many families existed for whom the cost might be an issue. There was also aspersions that such people should care enough for their children to buy helmets. If they couldn't afford such things, they should not have so many children/ should not drink beer or smoke/ should not drive big cars/ should shop for quality clothes that don't wear out so fast/ should make do with smaller televisions/ should ride bikes and take public transport. Archetypal bourgeois put-downs of working people as a slightly sub-human herd.

Peter Spyker showed concern on the issue of equity, when this author visited him in 1990, but he showed desperation, too. He and his Cabinet colleagues had several crises assailing them - not least the VEDC and the State Bank. Helmet mandation could buy support from the RACV and from the school parents associations - bigger influences than were cyclists in the marginal electorates of the eastern suburbs of Melbourne - so helmet mandation slipped through without the scrutiny it should have had as to either its science or its social equity. The Regulatory Impact Statement made totally unsustainable - even illogical - claims such as of helmets preventing 80% of cyclist fatalities. This was at a time when data was skimpy on bicycle helmet usage, but challenges to the claims could be ignored entirely in the political climate of the time.

(Bicycle Victoria's committee had been split almost equally on the issue of mandation - reflecting accurately the surveyed views of its members. Then it caved in to expediency, once the issue seemed to be decided, to be seen to be on the winning side.)

(It was neither the first nor the last time that the Labor Party had sold out the interests of its core inner-suburban constituency in the quest for a sad few evanescent votes in swinging electorates.)

VicRoads refused the requests of Ron Shepherd and others for proper surveys of cycling and helmet usage before and after the regulation took effect. We have only indirect data from other sources to try to build the picture.

Most of the scant data that is available (ref. Bruce Robinson's 1996 paper) tallies head injuries of all kinds, including lacerations and abrasions. It is very difficult to separate out the brain injuries. What brain injury data does exist is poorly correlated with bicycle usage, so we don't really know if changes to injury rates reflect changes in total bicycle usage. The data is further confounded by major safety measures - such as random breath testing and speed cameras - introduced concurrently with helmet mandation throughout Australia.

Any significance such data retains after all that is far too limited to survive breakdown into groups as to age and gender and, even less, to be to give significant results if separated into different socio-economic levels either side of helmet mandation.

Anecdotally, we have it that many older, law-abiding riders ceased riding - to the detriment of their health - because they felt that they could not justify the price of a helmet at the time of mandation. Children from lower-income families began breaking the law, with tacit parental approval. We appear to lack any data to contest these stories.

Inappropriate infrastructure

The ignorance of the cycle culture of the old industrial suburbs has led to a missionary-like imposition on those inner suburbs of cycle infrastructure developed for more-diffuse residential suburbs. In contrast to a stereotypical middle suburb such as Mt Waverley, the road widths in inner-suburban Brunswick are very much narrower and the traffic speeds are much lower. Not only is the speed differential greatly reduced between cars and cyclists - enhancing safety - but the local drivers are more accustomed to cyclists and pedestrians. They know to look out for non-motorists and to be ready to give way without too much confrontation.

In this environment, the key needs are for safe, reasonably smooth surfaces; sufficient space on intersections, sensitivity of traffic lights to the presence of cyclists; suitable lane widths; and safe crossings of bicycle/pedestrian paths across roads.

The on-road lanes sought by state-based groups such as VicRoads and Bicycle Victoria are often negative in their effect:

- narrow lanes (all that can be fitted onto narrow roads) can lead to motorists passing closer to cyclists because they give a false impression of separation
- the beginnings and endings of bicycle lanes often imply unsafe positioning of cyclists on the road and dangerous merging strategies
- lanes imply a bicycle route, but some such lanes lead straight into roads that are quite unsafe for inexperienced cyclists after the lane has served to tempt the cyclist away from a safer, parallel, side-street route

A major ongoing task of the local Brunswick Bicycle Users Group, for instance, is to review imposed plans for bike lanes to ensure that the beginnings and endings of them, particularly, are not going to make the situation dangerous or discouraging for cyclists, or to imply that the cyclist must give way to motor traffic that would otherwise have to yield to the cyclist.

Cyclists and bike riders

Cycle advocacy in Australia is dominated by middle class intellectuals. They are the people with the skills and the contacts, and the faith that they can make a difference. Their involvement is a vital part of campaigning for a better future but, arguably, their dominance of the process has led to the exclusion of other groups not only from advocacy, but from cycling itself.

It is characteristic of middle class thinking to feel morally and intellectually superior to *hoi polloi*, “the masses”. This is an integral part of the thinking that makes middle class people believe that they owe their wealth and status to their own individual efforts and their own cleverness; rather than in any way to the people whose work - or gullibility - has enriched that wealthy person.

By 1970 the bicycle had been abandoned to a degree by working people in Australia, but it was rediscovered by the middle classes. After decades of looking disapprovingly from their cars at the workers on their bicycles, the trend leaders of the middle classes started disapproving from their bicycles of working folk in cars. (Question: what is your image of a “petrolhead hoon”? Is social class what distinguishes *him* from the 1950s “roadhog”?)

I contend that it was important for the new wave of middle-class cyclists to feel that they were doing something that they believed working-class people had given up through ignorance and stupidity.

What concerns me is: if a large proportion of our population were to start cycling again, would the middle-classes in Australia abandon cycling? Would its association with the mass of ordinary citizens render it less attractive to those who like to feel a bit special? As Keith Dunstan tells the story, this is very much why the rich and powerful in Australia gave up their bicycles in the early years of the twentieth century after being so enamoured of them in the 1890s.

This quest for exclusivity may be illogical, even infuriating, but it is far more effective for us to use such sentiment productively than to try to disapprove of it and try to extirpate it. Planning cycling for all of society means being aware of the needs of each social group or “class”, not condemning them or trying to change their fundamental attitudes.

Reginald Shaw in “Teach Yourself Cycling” created a very English mode of exclusivity for the middle class cyclist with his quaintly pedantic distinction between the mass of *bike riders* and the cognoscenti, the real *cyclists*. Such a distinction is quite wonderful: it allows the middle class person to do the same thing as a working person - to ride a bike - yet feel as if they are doing it in so different a way as to give it exclusiveness. Or should we say: it gives it *class*?

We can see something of this in the Netherlands where - with a population close to that of Australia - the membership of the Dutch Cyclists’ Union, the *Fietsersbond* in 2000, was close to the same as that of all the state-based bicycle advocacy organisations throughout Australia. We might say that the number of *cyclists* in each country is very similar but, in Holland far more ordinary people ride bikes than in Australia.

There is scope for social-class segmentation in our campaigning. The National Cycle Touring Network, for instance, needs to encompass the needs of many different kinds of cyclists to be really successful. Serious cycle tourists can make it into a long distance adventure, but it needs also to provide short trips for families out for a day ride. Most of all, though, it will benefit

from serving the everyday transport needs of local people - even of the morning strollers and dog-walkers. Providing such networks of utility routes through towns provides attractive access to those towns and their businesses by visiting cycletourists with money to spend. By providing routes that serve the needs of locals, as well as visitors, we increase the use of such routes and increase their social security as well as ensuring that the routes are well maintained.

Recognising diversity can help us understand that the relatively long cycle journeys to work by maybe less than 0.5% of the population (we “cyclists”) have far less benefit - socially, economically and environmentally - than when 20 or 30% of the population begin to ride their bicycles on short local journeys.

Loss of local cycling culture

Rather than casting non-riders as slightly evil - a common attitude amongst keen cycle advocates - we need to empathise better with the very real obstructions many people feel in cycling. Particularly, we need to appreciate how debilitating can be the loss of local cycling culture to people who want to ride. When you cannot ask your friends, parents or neighbours how to carry stuff on your bike, or how to cope with the rain, whom do you ask? With the decline in cycling in the industrial suburbs of Melbourne, a lot of the culture was lost.

It is important to realise that cycling culture is no more homogeneous than is any other culture. The cycling culture of inner Melbourne in the first half of the 20th century was very different to the consumerist culture of 2005. In many ways, it was more like that of modern Amsterdam in the style of bikes and how they were used. A high proportion of bikes were bought with mudguards, dynamo lights and carriers, although some of these things were not replaced when they broke. Most bikes had only a single gear and, often, a backpedal brake. The only common multiple gearing was the Sturmey-Archer 3-speed.

Even between Coburg and Brunswick, adjacent suburbs in the post-1992 municipality of Moreland, there are significant differences in the ways people use bicycles. In Brunswick, which is closer to the CBD, a high proportion of the cycle traffic is north-south: commuting to and from the CBD and the universities, (according to annual traffic counts by City of Moreland and its predecessors, the Cities of Brunswick and Coburg, since about 1990) (Elliot 2002)

In Coburg, much more of the riding is east-west: to and from the Sydney Rd. shopping strip, community centres, medical and other local facilities.

Both Brunswick and Coburg are flat enough that a single-speed bike is adequate and an upright posture is practical. The adjacent cities, Darebin to the east and Moonee Valley to the west, are hillier and so demand multiple gearing and a posture better suited to climbing hills.

Encouraging cycling through rebuilding culture

Here the author must admit to a personal passion for a project he has been involved in deeply.

At the Bicycle Recycle Shed in Brunswick, an offshoot of the Brunswick Bicycle Users Group, volunteers attempt to provide a place where people can learn how to equip their bike and how to maintain it, how to cope with rain, hills or carrying loads. These are the sort of things that earlier generations of Brunswick cyclists absorbed as local culture - just as Dutch people do today.

The Bikeshed team tries, as well, to conserve the culture of innovation and reuse that characterised those they have known of the earlier generation of cycle mechanics in the local area.

That's not to ignore ideas from other places. Some of the most useful technologies have come from Holland and elsewhere, but those ideas are filtered through the local culture, not simply imposed. The rim straightener from the Smerig collective in Amsterdam needed to be made narrower for Australian wheels. The Dutch cotterpin tool needed to be adapted so that it clears local chainguards, and so that the parts remain connected when the tool is used by inexperienced people.

The Dutch ideas for cataloguing and orderly storage of reused parts are, however, inapplicable because the range of bicycle types in present-day Australia is so much greater. Even less applicable are their ways of organising the volunteer team. Without the secure part-time employment that the Dutch volunteers enjoy, the local workers are unable - for the most part - to guarantee their working times.

Study of local cycling history is not to fossilise but to sustain local cycling culture. The history helps in applying knowledge and learning from a wide sphere - including local sources - in ways that better meet local needs. The inevitably subjective view of that history helps each of those involved to relate the culture to their own passions, skills and our other learning. Culture is a living and adaptive thing, and history helps in understanding how to rebuild and to maintain it.

Integration (or “Conclusion”)

The fairly low rates of cycling in Australia relate in part to the deep socio-economic divisions of Australian society. Those divisions foster a nest of resentments and biases that make reliable measurement and real progress very difficult. We have come a long way with racial reconciliation in Australia but we continue to delude ourselves about class prejudices and divisions within our society. By recognising these issues, and the diverse cultures they reflect, we may be able to work through them to achieve real progress in promoting widespread bicycle use.

While it is important to apply sound science to our sampling and collection of information, data can only as good as the story it deconstructs. Telling the story more inclusively can help us integrate our own vision as “cyclists” with the visions of other groups in society. It can help us to see bicycle use as part of broad-based strategies for all people, rather than a thing in itself that defines us as a group apart from the mainstream.

This new, encompassing story should accommodate all styles and modes of cycling, including the little old lady who parks her shabby, pink, stepthrough in the foyer of the supermarket and who gets in our hurried way as she wobbles home in her daggy old Stackhat with her rusty, battered, wire baskets full of the week's shopping. She is as much part of the culture and history of cycling as any of us are.

That's a story to celebrate.

References:

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- Keith Dunstan: *Confessions of a Bicycle Nut*; Information Australia 1999
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- Alan Parker: paper for *Velo Mondial 2000* conference, Amsterdam, NL, 2000
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- Fairlie Nassau: *Regulatory Impact Statement on Mandation of Bicycle Helmet Use*, VicRoads 1989(?)
- Gert-Jan Moed (curator, Velorama museum, Nijmegen, NL): pers. comm. 1996
- Marjolein De Lange: unpublished data collected by the Fietzersbond ENFB (Amsterdam) in preparation for *Velo Mondiale 2000*
- Nicholas Elliot, Bicycle Coordinator, Moreland City Council: unpublished data from annual surveys of bicycle traffic to 2004.

Appendix 1

The data of Pike and Conquest

Bicycle usage and the "index of bicycle usage" (P.44)

$$\text{Bu} = \frac{W_1s + W_2h + W_3p}{W_1 + W_2 + W_3}$$

- Bu** bicycle usage
s bicycles stored at railway stations / 1000 commuters (in each municipality)
h ratio of high and technical school students riding / total enrollments
p ratio of primary school students riding / total enrollments
W₁, W₂, W₃ weights, since high school students' use of bicycles is about 3x as great as primary school and commuter use.

city/shire **bicycle user index** (p.46)
 (Many data have been left out of the middle of the multi-page table, excepting Waverley where this author grew up.)

Healesville	.87
Sandringham	.79
Brighton	.79
Mordialloc	.74
Chelsea	.74
Moorabbin	.67
Springvale	.62
Williamstown	.54
Nunawading	.52
Oakleigh	.49
Waverley	.41
Eltham	.13
St Kilda	.12
Essendon	.09
Brunswick	.08
Kew	.06
Sth Melbourne	.06
Footscray	.05
Melbourne	.04
Prahran	.03
Port Melbourne	.02
Richmond	.02
Collingwood	.007
Fitzroy	0

Appendix 2

Apologies

Apologies for any negative aspersions perceived by small people, older citizens, women, people wearing Stackhats and riders of pink stepthrough bikes with baskets. It's good to see all of you out there on bikes.

No offence to the memory of my late mentor and friend, Ron Shepherd, who found Reginald Shaw's definition of *cyclists* "inspiring".

Appendix 3

Further research

Research for this paper has made clear just how much research is needed urgently.

So much of bicycling history and culture sits with the people who have been part of it. Many of the witnesses to cycle usage a generation ago are growing old and there is a need to get out and record their stories.

My hope is to have some of those stories from cyclists of the Moreland area assembled in time for the next Australian Bicycle History conference.

Another realisation to come out of the research was the importance of each of us recording our own cycling recollections. My own notes have revealed far more than I expected of the cycle culture of Mt Waverley in the 1950s and 60s. The vague, disconnected memories form a surprisingly coherent picture once assembled on paper.

Appendix 4

History and Science

In our “scientific” era, there is pressure to be “scientific”. In the Middle Ages when religion held sway, historians and other researchers had to couch their studies in religious terms in order to receive funding. Now it’s science.

This appendix is not a detailed analysis of science, religion or history, but a caution to historians who may feel pressured into being more “scientific”, and a caution against treating “scientific” historical data too religiously.

Scientific research has a role to play in history but its role is limited and the limits need to be understood.

We can never comprehend all of reality - what ever that is. We draw pictures, tell stories, make models or collect data to *abstract* a comprehensible representation of “reality”.

Any representation we make is *subjective* or *biased*: it comes from our viewpoint. Furthermore, the way we represent something precludes our simultaneously seeing it in another way (this is one aspect of Heisenberg’s “Uncertainty Principle”, if you want to follow that up).

One of the subjective ways we may represent a reality is through “scientific method”. The basis of scientific method is to analyse (Latin for “break down”) our subject of study to such a level of simplicity that we can test and collect data on the aspects we choose to study. (This analytical process is also referred to as Cartesian Reductionism, after French philosopher Rene Decartes. In Post-Modern jargon, it is “Deconstruction”.)

Scientific method begins with a hypothesis, an idea that we suppose encompasses the reality we are studying. We devise tests and sampling techniques that can substantiate this hypothesis, or disprove it. Without a clearly-stated hypothesis, we could be collecting vast amounts of unusable data, so the hypothesis is a necessary step.

Proposing a hypothesis, however, is a subjective, creative step. Before we begin collecting data, we must propose what the data may reveal to us.

However “objective” is the treatment of the data we collect; however thorough and “unbiased” our collection of data, the hypothesis cannot be objective or unbiased.

As a result, scientific method cannot be seen as impartial, objective or unbiased, although it remains a useful tool, if used with due caution.

Data sampling and inference

For the most part, in measuring social phenomena such as transport usage, we cannot know the total number of trips that people make. We must sample.

If we are to measure the amount of bicycle usage in the City of Moreland (inner north of Melbourne) we might hire people to count all the bicycles that go past several points around the city.

We can’t afford to have counters on every street throughout the day, so we choose streets that we believe to be “representative”. We can’t pay the counters to be out all day, every day, either. Thus we choose a day we believe to be representative and we pay the counters to count bicycles only within the times that we believe most cycle trips to be made.

A key function of the data is to measure changes in cycle usage as a result of administrative policies. So we repeat the survey each year. We try to choose the same sort of day each year and this brings some serious challenges. Do we make it the same date each year, or do we make it the same day of the week each year? How do we allow for the weather? How do we cope if our chosen day is a holiday when we usually survey on a working day?

Even after all those decision, we have the barest of information about those cyclists. Where are they going? On the main north-south routes we are guessing - that is, we “infer” - that they are going to “work”, but even for those observations, is this a fair description of their journey?

Data sampling always involves inference of broader results from narrow data, but we need to be aware when we are doing it. Many researchers have inferred cycle usage from data on cycle sales without enough awareness of the huge leap of inference this comprises.

The particular risk for historians is to suppose that data actually does represent the story it claims to tell. A measure of cycle usage (Pike’s, for instance) does not necessarily reflect cycle usage at all accurately. A measure of cycle sales will tell even less about actual usage.

Every stage of the scientific process involves subjective decisions and guesswork. Data collected systematically (“scientifically”) can help us establish the validity or authenticity of a story we are telling but data is not a story in itself, and it is not objective in itself.

It is worth interposing here that no amount of computational wizardry can bring anything but junk conclusions from junk data. Much of the pressure to be “scientific” stems from the ease with which numerical data can be processed in a computer. This has more to do with budgets than with quality and the vast quantity of information the computer can process should not be mistaken for an improvement in quality of the story we tell.

Used conscientiously, scientific method can help us towards being a little more objective and consistent. It is a useful tool but we should not allow it to overwhelm history the way econometrics (the “scientific” measurement and computer processing of economic parameters) has been allowed to push out all other, broader, aspects of economics.