

Transforming Public Transport [original title & unedited version]

One of society's most obdurate & intractable failings is its incapacity to look to the wider contexts of whatever concerns it. This incapacity to generate and use "meta-lenses", lenses that enable generalised seeing, leads us to never-ending series of "solutions" of much the same order as the problems we started from. Nearly a hundred years ago Einstein tried to tell us that solutions of the same order as our problems don't work.

When I began to teach (and understand) systems thinking thirty years ago, it occurred to me that "problem solving" practice, or the conventional "problem/solution" expectation was a recipe for continuous displacements. This in turn was a fantastic source of employment and growth – as required by our political economy – but all performed at the expense of energy and planetary "resource" use, most of which did not have to be accounted for and therefore was not recognised, by that political economy.¹ The displacements were of every type imaginable: spatial, temporal, social and ideological. So that, for example, when we threw away the chip bucket, the *away* to which it went, in the first instance, did not arise at all in the minds of the throwers and when it finally did, it became landfill. Landfill "dealt with" it:

- **spatially**: as an "appropriate" site had now been found;
- **temporally**: for something like the next fifty years, by which time the throwers were dead and the next generations had to deal with the now leaky landfill site;
- **socially**: in that the waste had now landed in electorates unable to oppose it, or worse, were actually grateful for its rate-able siting in their own territory and
- **ideologically**: in that it was e.g., being perceived as a rateable resource with the added upside of "doing something" for the wider community.

The wider *resource* lost in all the materials tied up in those sites and in the practices they relied upon (e.g. forests for the paper) simply did not arise in the minds of those doing the dumping. When it did, the recognition led to recycling which in a *metalensless* world seemed to be "doing the right thing" at last. Whereas, in terms of energy and materials gained for energy and materials sunk into the practice, it was mostly yet another waste-making, delusionary, displacement. And that's where we are today.

Turn to any profession and you'll find just the same set of general practices alive and well, medicine is still primarily the domain of the "magic bullet" (pharmaceuticals & mechanical treatments such as surgery) while meta-techniques for holistic approaches are at best marginal (c.f. Feldenkrais in physiotherapy) and in our acute cure-providers, hospitals say, are almost non-existent. General physicians say, are a rare breed whose competence is doubted and even General Practice is, remarkably, a specialism (!?) with decreasing status. Education (where it all starts) is the domain of the discipline and wobbles the academic who attempts to start anything interdisciplinary let alone transdisciplinary. A multidisciplinary curriculum is a rare beast requiring constant vigilance exceptional teaching, rigorously independent funding and a strong student base for its survival. A notable example of such a success is Melbourne's interuniversity Master of Public Health. In engineering, social context is given lip-service; c.f. the worthy magazine *Engineers Australia*, where various columns encourage it but, for some ten years on the Faculty Board of one of Australia's premier engineering schools I was unable to introduce the slightest accommodation of context into that Faculty's courses and, the only successful attempt to do so, at Melbourne's RMIT Uni., is now as good as dead.

It is easy to understand then, that our approaches to resolving Australia's urban transport difficulties are piecemeal and that what limited success we have (notably in Perth) arose from the remarkable generalising influence of an outsider, environmental scientist, Prof. Peter Newman. So far however, the successes have not involved any large scale inroads into the use of the private urban commuter vehicle, or DODO, as Australia's primary means for urban commuting let alone into the use of trucks instead of trains for goods transport. The DODO or Driver Only Driver Owned commuter car exercises its seductive hold over urban commutation through its very dedication to a single person. In the first instance it does it by privatising ownership to its (owner-)driver which secures and ensures his/her continuous access to it. The apparent freedoms provided by that dedication, by the widely accessible monetary resources to secure (owner-)dedication and by the equally widespread (if nowadays wilful) ignorance to the planetary consequences of DODOs, are among the many difficult binds we must unpick in the effort to wean ourselves off default use of DODOs for all transport duties.

Currently the dedication to the DODO accounts for something like a third of all our energy use. In saying this I am including the energy costs of building, maintaining, monitoring and deconstructing the motor car and all its supporting infrastructures. These costs cover such diverse activities as a good proportion of hospital emergency

activities, a significant proportion of government bureaucracies, one part of which will be the defence forces dedicated to maintaining oil supply lines and another being provision of foreign relations services to facilitate them. Were we to attempt to cover all the energy costs of the car and its supporting infrastructures, we would need to offset the energy demands of rectifying environment and human health damage inflicted by its many-faceted emissions - only one of which is CO₂! Other emissions from its operation are a variety of noxious gases, particulates, heat, vibration, noise Beyond its operational environmental costs are the pollution implications associated with driving its infrastructures, their construction and all their supporting infrastructures in turn. To make good these extensive and comprehensive environmental damages would likely take more energy than we currently use for everything. Taking implications such as these into consideration implies an operational efficiency in moving that Driver very close to zero. On top of this, governments desperate to reduce their fossil fuel dependency are now beginning to support fuelling this process from foodstuffs (corn, sugar, canola ...) forcing up the price of foodstuffs. The use of foodstuffs to drive DODOs moves us way beyond the inefficiencies in using grain for feed lot beef because a far smaller proportion of the fuel provided to a car (<1%ⁱⁱ) actually goes to move its driver, than goes to "fuel" a grain fed steer's production of meat! If grain-fed beef is a reprehensible use of grain, how much less acceptable are grain-fed DODOs?

What then might we do to make its alternative, urban public transport and in particular the *bike-rail* combination of bicycles and public transport, more attractive to city dwellers?

To change the way we transport ourselves, particularly the regular, less discretionary parts of our travel demands such as commuting duties, we need to address the perverse incentives that maintain them despite their many "contra-indications". For most of us all these contraindications that so threaten human as well as environmental health are just intellectualisations with little anchor in our personal, day-to-day, realities. Owning our vehicles, as we've seen, is part of the problem. If we did not have that huge fiscal sink in our garages we would think of cars as just another transport option in the mix confronting us.ⁱⁱⁱ Without the burden of the DODO default, we would develop our own unique set of options that we would come choose among with as little effort as today we drop to the current one, the "vehicle for all seasons". These, more flexible options would involve heightened spatial and temporal priorities in choosing where we live, work, school, entertain ourselves and so on.

Having paid all that money for our private motoring infrastructures, fuel prices appear to be a relatively small disincentive to using them. The real disincentive is rather greater than appearances would have one believe but its incremental onset (the weekly fuel bill) encourages us to minimize it. By the same token, simply exhorting people to use public transport and bicycles to access it, in the face of the numerous associated disincentives most people perceive, such as tickets and brutal, unstaffed stations and, in the case of bicycles, the presumed vulnerability of a citizen on a bike, is not enough. Work must be done to reverse the deepest perverse incentive to using urban transit systems viz. how we charge for its use.

Currently most people encounter payment for their public transport use through the ticketing system. Ticketing provides a distorted introduction to public transport unnecessarily spoiling the public's perception of public transport as a whole.

Public transport is currently funded from "consolidated revenues". Ticketing probably costs more than it raises. The reasons for saying this arise from considerations, beyond immediate system running costs, such as costs associated with:

1. Hardware: the costs of erecting repeated iterations of ticketing hardware. This must include the \$B1 spent on the current Kennett system and the \$B1.3+ for the new "myki" system.
2. Maintenance: beyond routine machine maintenance there will be unpredicted system failures as new systems "bed down" and vindictive failures such as vandalism.
3. Price support: the reduction in income through politically motivated provision of concession fares, abolition of zone 3, free city-circle trams and similar.
4. Human service: nominally obviated by the new automated systems, inspectors will undoubtedly be around for some time yet (under "myki" too) and on-call staff will have to be retained to deal with ticketing equipment failures and misunderstandings.
5. Alienation of the public:
 - a) the ticketing process itself with its policing system has constituted a deterrent to use of the system; to the extent that "myki" functions, this will decline however, it remains to be seen.

- b) time used by, and stress caused to, the public in struggling to interact with our fare payment systems and their failures.
 - c) the **social costs** (deterrent) of the "dark-spaces-of-terror" that unstaffed and isolated stations represent to many people who would otherwise use them at night (see 6. next).^{iv} In relation to this i urge readers to consider the implications of the red emergency button at railway stations! Firstly it is not easy to get to when you are being molested and secondly, if you *do* make it, will someone be there to aid you promptly? No-one was when i tried and, when others have tried they were trivialised for their reasons for trying!
6. Alienation of a group of people: fare-evasion inspectors have become a malign presence in the public transport system and this is not an enviable situation for them, with again undoubted calls on formal and informal stress mitigation processes.
 7. Loss of revenue in fixed assets: inherent in all the urban land and unused buildings that languish, underutilized, behind the barriers that keep the ticketless ("invalid") out of the system + the small but continuing loss of revenue generated by the space occupied by the machines on trams and buses. These losses are appreciable. There are some 200 railway stations, mostly empty and all - but Southern Cross - underutilised. We will come to the ramifications below.

In other words tickets are an alienating employment scheme and we can surely do better than this. Finally, as a mechanism to monitor travel behaviour and gather travel statistics - one of the reasons given for ticketing - the current system must be very weak and i have yet to see figures showing how much better the "myki" system will be.

I propose that we replace fares with a metropolitan transit levy (MTL). I have been making these arguments for some 20 years with support from, among others The (Melbourne) Age newspaper which actually goes "the whole hog": advocating "free" public transport, i.e. without even a levy.

The levy idea would replace some of the hidden taxes that currently support public transport by **replacing fares** with an annual Medicare-like levy. Once bedded into taxation infrastructure the levy would raise a politically determined proportion of regional and capital city public transport costs. It would then return our cities to us with enhanced community, environment & health. Federally collected annually, from employed urban Australians, it would be a natural end point to 150 years of awkward and alienating fare schemes. In Melbourne it could be in place in time to rescue its residents from the problems associated with the next billion dollar plus fling about to, about to, about to [sic], smarten Melbourne's public transport fare collection scheme (i.e. "myki").

An MTL would mean:

- **public transport free at point of access.**
- public transport free to rural visitors and tourists (just like water). Along with rural fast rail, this would provide an incentive to use rural public transport to commute to the cities.
- a built-in incentive for urban residents to use public transport - annual payment would remind us that we'd paid (something real at least) toward it and therefore that we may as well use it.
- an improvement in the status of travel on "The Met". It would no longer be seen as the "poor cousin" of the DODOs. It would simply be **the** way to commute in our cities.
- removal of one major source of direct stress and therefore alienation associated with commuting. Not least, a dramatic decline in the deaths and injuries from crashes and the plethora of diseases directly attributable to auto-commuting; in Melbourne alone some 600 deaths annually.
- removal of indirect stresses associated with train travel, through e.g. heightened community activity and commerce at stations (more below).
- Removal of favours to those wealthy enough to afford congestion taxes (e.g. city parking fees) and avoidance of the resentment such favours generate.
- the usual Medicare-like support for people for whom the levy would be an excessive burden.
- removal of barriers to the poor to use public transport.
- a general "disarming" of the public transport system with transit assistants replacing the "fare police" and therefore the return of the space & vacant buildings around railway platforms to commerce and the community, and a welcoming and attractive system, partly arising from the greater density of users!

Therefore:

- an improvement in the community spiritedness of our already friendly city.
- removal of the threat to monitor citizens' movements by tracking us through the coming "smart" ("myki") cards.
- enhanced participation rates. These would provide political constituency for dramatically improving the current carrying capacities of our metropolitan transit. Relieving rail-congestion is, at least in the long run, so much cheaper and healthier than relieving road-congestion. Consider the neglected costs of making good planetary damage caused by global warming and the many other negative effects of DODO commuting outlined above!
- a more open and equitable system in which payment for the system was overt rather than covert as at present (where real payment comes from consolidated revenues). Indeed the annual MTL bill could indicate the proportion of the total cost of metro-transit it actually covered.

For all this it must be recognised that dramatically increasing the capacity of our urban rail systems is no mean feat. It will cost billions, take time to do and create substantial public disruption. Indeed, an argument against the MTL is precisely the government's fear of overloading the current system ... ! For all that, we live in a representative democracy and the government requires constituency before it acts, so overloading the system is in a sense the only language it can hear.

Finally, one of the most valuable implications of a MTL and a dramatic improvement in public transport availability would be the support that they would give to Melbourne's best kept secret: the effectiveness of the bicycle-rail collaboration. Thirty years ago, in various publications, Alan Parker pointed out that the fastest, cheapest, healthiest and most sustainable way to get around much of the Melbourne Metro Area was (and today still is) a combination of bicycle and rail. I.e. bicycle to and from rail. It requires greatly improved bike parking facilities at stations and an improved capacity to carry bikes on trains. This has been my commuting mode for nearly 40 years. From my flat in Clifton Hill i used to make it to my office in Clayton in just 50 minutes, as fast as by car. Using a long term ticket and one or two bicycles, Melbourne becomes translucent. No peak hour traffic jams, no parking problems, no need for fuel and maintenance, no depreciation on the car (i rent if ever i need one), no speeding fines(!?) and, most of all, two to three times faster than the DODO because there's no time wasted earning the money to pay for it or to park and service it!

ⁱ As i reread these words, Di Martin of Background Briefing (ABC-RN: 8.03.09) is confidently telling us that "renewable electricity is more expensive than fossil-fuelled electricity". She is forgetting the unpriced costs of coal-based electricity: the global warming but, also, the human and ecological pathologies from the heat released by burning coal (as separate from the greenhouse gas *retention* of heat), the toxic gases, the particulates and the social, geological and aquifer displacements Her choice of words is profoundly misleading; it gives the impression (probably quite unwitting) that accepting renewable generation ("green energy") in the face of current higher prices than those of fossil-fuelled electricity - ***whose prices are largely uncosted*** - is somehow a con foisted upon an unaware public.

ⁱⁱ Re 1% efficiency: without taking into account infrastructure energy costs: engine energy conversion (fuel to wheels) efficiency is roughly 15%. Cars are some 15x heavier than drivers, so only one fifteenth of the 15% of available energy in a DODO's fuel is actually used to move the driver – the rest moves the DODO. And, just a reminder: nowhere have we yet factored in the energy "on-costs" of the car (c.f. energy required to make it) and its infrastructures!

ⁱⁱⁱ The garage itself is a fiscal sink in its own right! Aside from its construction and maintenance is the cost of the land it sits on and its associated opportunity costs!

^{iv} The late Pamela Bone [of *THE AGE*, Melbourne daily] argued this way to me when i suggested, years ago, that she might consider using public transport and a bicycle Readers may enjoy knowing that a decade or more later she got back to me with an apology and a very much changed tune.