

Nature & Society

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February - March 2006

Editorial

Last year a political dispute arose about the idea of testing and grading the literacy and numeracy skills of young school children. It was the grading that provoked many educators, not the need for the skills themselves; these skills are seen as essential for successful participation in modern life.

Unfortunately, understanding the complex problems humanity faces requires many skills that seem to be lacking in various sectors of society. One glaring example is the problem of growth. Our politicians, economists and business leaders are fixated on the idea that we need growth, not recognising that growth is the cause of many of our problems, not the answers to them.

In December Albert Bartlett, a retired professor of physics from Colorado, visited Canberra and Adelaide to give a lecture 'Arithmetic, Population and Energy'. Bartlett has spent the last twenty years trying to raise the alert on our passion for growth. Growth unchecked is totally unnatural and definitely not beneficial.

There is a general lack of understanding of the way apparently small amounts of growth add up. Long ago school children learnt to calculate compound interest, but this only related to money, how much interest you could get from the bank (in the absence of bank fees!).

Without revisiting the process of calculating compound interest, take note of the following result. One per cent growth per annum, compounded over seventy years results in the doubling of whatever you are counting. But if growth is two per cent then doubling time is halved – thirty five years. If growth is five per cent doubling takes fourteen years and growth of ten percent gives a seven year period. Forget money, think population, resource consumption, energy usage, urban sprawl, and think what this means.

The effect of this growth can be illustrated in many ways. There is the analogy of the lily pond where the lilies spread exponentially, doubling the area covered each day. At first the area covered was so small it did not seem to matter at all. Then it got to one eighth, one quarter, one half full; the next day the pond was completely covered.

You may prefer the microbes, happily doubling their numbers in a flask each day. At half full they sent out some scouts who found the untold wealth of three new flasks to live in. Wow! Next day their original flask was full, the day after, one of the new flasks was full, and the following day the remaining two flasks were full. Their bonanza was an illusion. Exponential growth had eaten it all up.

So when an energy and resources minister announces a new find of oil or gas and says we now have reserves for ten, or fifty years at current rates of usage, beware. Our usage is not steady, it is increasing. Worse still we are seeking new markets to sell the resource off even faster. Our new resource provides an illusory security of supply.

Another thing to consider about exponential growth is that with every doubling the new number is greater than the total of all that has gone before, a very sobering thought. You can try a simple three by three grid, with the number doubling in each successive square.

*Facts do not cease to exist
because they are ignored.*

Galileo Galilei

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Note that four is greater than one plus two, and that 256 is greater than the sum of all the previous numbers.

1	2	4
8	16	32
64	128	256

The population of humans could double slowly over millennia and not be too obvious, but our population numbers and resource use have reached the stage where a future doubling would be disastrous. And yet global population has doubled in the lives of many NSF members. We do not have a new Earth to colonise and even if we did, if growth continues we would fill that, too.

Who ever heard a doctor reassure a patient that their cancer was robust. A more normal term would be malignant or aggressive, neither remotely reassuring. As Prof Bartlett says, the failure to understand exponential growth is a major problem in our society.

Another problem in mathematical understanding appeared in a letter to the *Canberra Times* last year.

The writer stated that as the carbon dioxide concentration in the atmosphere had increased from 270 parts per million (ppm) in 1800 to 360 ppm today, this means that the composition of the atmosphere has changed by only 0.009 per cent. Such a small change can be of no consequence: the more usually quoted figure of a 33 per cent increase in CO₂ is a case of lying with statistics.

The letter writer had raised an important point: statistics can be presented in different ways. Frequently one way makes the figures look serious (eg. a big increase) and another equally valid way trivialises them. The form of presentation can be chosen to achieve a desired effect.

In this case the writer apparently does not understand that this tiny proportion of CO₂ (along with water vapour et al) is what keeps the earth at a habitable temperature rather than in a deep freeze. An increase in that proportion will raise the temperature an uncomfortable or

even dangerous amount. A tiny amount of poison might not kill, but a slightly increased dose might do the victim in.

Professor Bartlett bemoaned the inability of so many politicians, economists and others to understand the problem of growth, when children can understand it quite easily. It is probably not a matter of numeracy but of preconceptions. If you have always believed that growth is good, that there can be technological fixes for everything, that humans are special and limitations are for others, then you can think that growth can continue for ever.

Numeracy is a useful skill but a broad knowledge of the history of life on earth, an appreciation of ecology, biology and earth sciences, and the interconnectedness of all

these with the history of human civilisation is essential for the correct interpretation of the mathematical problems discussed above. Could we hope not only for numeracy and literacy testing of all people in powerful positions, but also for tests of their ecological, general scientific and historical and sociological understandings too?

Jenny Wanless



[Catton] proposes that the outpourings of proponents of unlimited growth are like confabulations (elaborately unreal stories concocted as rationalisations) and this behaviour resembles symptoms of the medical condition anosognosia (inability of stroke patients to recognise their paralysis).

He concludes "Denial by opponents of human ecology seems to be a way of coping with an insufferable contradiction between past convictions and present circumstances, a defence against intolerable anomalous information".

*From the Energy Bulletin website
13 January 2006*

"Dispose of Thoughtfully"

The instruction on some packaging to dispose of it thoughtfully is not very helpful, but here are a few ideas on thoughtful disposal.

Tatty old towels are very handy if you have a dog. If you don't, remember the RSPCA has many dogs. They (both they RSPCA and the dogs) would appreciate your old towels.

Old pillows and cushions would add to the comfort of cats in the shelter. Old blankets are likewise acceptable. Wildlife carers also need blankets to make pouches for abandoned marsupial babies.

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Where we are:

Our rooms are in the South West Wing of Weston Creek Primary School, Minns Place, Weston, ACT.

By car: from Civic, follow the signs to Weston from the Tuggeranong Parkway and continue to Weston by veering left from the traffic lights at the Cotter Road turnoff. This takes you along Streeton Drive for one kilometre, then turn left into Hilder Street (there is a small signpost pointing along Hilder Street). Drive around behind the school into Minns Place and then into the car park. Our rooms are down the slope to the left of the school building – about 40m from where you'll park your car. Follow the sign to 'Sustainability Groups'.

There is space for three or four cars for disabled access close to the entry. There are ramps over the kerb from this small parking space and entry to our building is without steps.

By bus: The 126 bus route from Central Canberra and walk 200m.

By bicycle: the office is adjacent to the western trunk cycle path between Civic and Tuggeranong.

Your participation is invited

On the next page there is a partial list of activities under way in NSF. If you have comments or suggestions about any of these or the articles in *Nature and Society*, please contact Committee members or the NSF office.

Forthcoming NSF meeting

Wednesday 15 February 2006

New time and venue: 7:30pm at the ANU

The development of a UNESCO biosphere reserve in Australia - the lessons for an ACT biosphere reserve

NSF is collaborating with ANU's UNESCO Centre to present this special members' meeting on Wednesday 15 February which is also being advertised to the public. Note the changed venue and earlier start time.

There are more than 400 biosphere reserves on the World Network. The network is administered by UNESCO, a specialised agency of the United Nations. The ACT Government included in its recent election platform proposed nomination of the ACT as a biosphere reserve. Our guest speaker, Dr Pamela Parker, has first hand knowledge of the establishment of an Australian biosphere reserve, the Riverland Biosphere Reserve in South Australia, formerly known as Bookmark. It was one of the first Australian initiatives to promote new global directions for biosphere reserves in addition to their conservation function. Biosphere reserves are now also vehicles for promoting sustainable development, recognising that people are part of nature, not something separate from it.

Pam was the author of a landmark report on Australian biosphere reserves in the early 1990s which led to the development of Bookmark, a biosphere reserve with partnership between Commonwealth, State and local government as well as the private sector.

She currently works for Australian Landscapes Trusts, a private sector organisation devoted to promoting healthy landscapes in Australia, and the Chicago Zoological Society.

In her talk Dr Parker will draw on her experience with the development of Bookmark and its possible application for an ACT biosphere reserve.

For information on UNESCO's biosphere program and the thirteen existing biosphere reserves in Australia see:

<http://www.unesco.org/mab/wnbr.htm>, and

<http://www.deh.gov.au/parks/biosphere/index.html>

The location is Lecture Room 3, Manning Clarke Centre (ANU building 26a) on the ANU campus. This is next to the Union Building on the city side of the campus. Parking is not too far away, either near the Street Theatre on the city side or near Vivaldi's Restaurant on campus.

The lecture theatre will open at 7:15 and Dr Parker's talk will begin at 7:30 pm sharp. Please leave time to get from your transport to the venue.

NSF news

Over the summer break NSF members and our Committee have been active on a number of fronts.

Futures Forums Following the first Futures Forum, we have evaluated the outcomes and are planning a new series in 2006.

Each forum comprises 10-20 citizens who are not necessarily highly environmentally aware. The forums begin as a reading group centred on the NSF book *People and Nature: The Big Picture*. Members meet on a number of occasions to review their understanding of the book with each other and the NSF facilitator. Then they meet together to discuss what should be done in the light of the information gained and their own experience of the world around them.

Brett Odgers is coordinating this activity and would appreciate assistance of volunteers for this year's ACT forums. With three or four

volunteers we can run enough forums to hold a symposium later in the year, bringing together members from each forum to focus on what needs to be done and to make recommendations. These could have targets ranging from recommendations for personal change, through action by retailers, action by the ACT government or by the federal government – or anyone else.

To see if you would like to volunteer, you could read NSF the book (available through the NSF office) or contact Brett on 02 6286 4395. We would like to hear from interstate members who would like to run forums in their localities.

NSF's strategic direction Following the think tank meeting late last year, a sub-group of the Management Committee began in January working on a strategic plan for NSF. The group has been delighted to accept as NSF's vision our longstanding '*Healthy people on a healthy planet*'.

Their second task was to develop a mission statement to express NSF's purpose, its reason for being. Spelling out our purpose will enable us all to tell other people what NSF does and so help us to attract new members. It will also keep us on course. On 1 February the Management Committee accepted as our mission statement '*The Nature and Society Forum is a catalyst for social change to bring about a biosensitive*

society which satisfies the needs of humankind and the ecosystems of which we are a part'.

The group is now beginning work on a strategic plan for NSF's next five years.

Social change We know that we have the technology, the knowledge and the skills to ameliorate the environmental and health problems confronting us. The big challenge is to get people, businesses and governments to change. From this starting point, another NSF working group is developing a set of authoritative, plain English information materials on NSF themes and ways of delivering them which will involve both printed materials and the internet and will also enable dynamic interaction with the wider Australian society. This project aims to achieve social change by providing the necessary information about the ecological

constraints under which we live and the possibilities for change within those constraints. The design phase of the project is completed and we are now recruiting NSF members for the advisory panel and looking at

funding opportunities.

Website The peak oil page (see the August edition of *Nature and Society*) has been the most popular page on our site. We are planning to increase the volume of material on our website significantly and would like to hear from NSF members with web design skills who could assist with this project. There are funds earmarked for improving our web presence and so we hope to engage an NSF member or friend of NSF to guide us. If you can help or know of someone who may be able to, please contact the NSF office (see page 3).

Should NSF engage in more public lobbying? We received a letter from the Minister for the Environment explaining that NSF could not use donations it receives for political, lobbying or any other activities not consistent with the reasons for the granting to NSF tax-deductible status for our donations. Most of NSF's income derives from donations and we do not want to jeopardise our ability to enable our donors to claim a tax deduction for their kind gifts – our lifeblood. For this reason the NSF Management Committee decided to concentrate on its educational role and to leave the lobbying to individual members and the many active and highly-regarded groups around Australia.

There are, of course, many other activities under way. More on them in our next edition.

All political parties die at last of swallowing their own lies.

John Arbuthnot (1667-1735), Scottish writer and physician

Book review

Overshoot: The ecological basis of revolutionary change

William Catton

University of Illinois Press, 1980

Why would I review for you a book that was published a quarter of a century ago? Three reasons: (1) the passage of time has made it urgently relevant to understanding the present and the future of the human place in nature, (2) I came across the book myself only recently and expect that there are others who have not heard of it and (3) it's an eye-opener, one of the most significant and fundamental books on NSF themes I've read.

Seven years in the writing and encyclopaedic in scope, *Overshoot* synthesises biological, sociological and cultural perspectives in an ecological analysis. William

Catton uses his training in sociology to explicate the web our civilisation has woven between humanity and the planet's ecology and especially between that growing part of our environment and ourselves that we use and abuse. He shows how we are caught in this web and how it must, inevitably, drag our civilisation down. He does this using an ecological vocabulary to describe and account for events that most people have been accustomed to thinking about in quite non-ecological terms.

Catton rigorously examines our civilisation in its ecosystem. His conclusion is that:

Today mankind is locked into stealing ravenously from the future [by way of] diachronic competition, a relationship whereby contemporary well-being is achieved at the expense of our descendants. By our sheer numbers, by the state of our technological development, and by being oblivious to differences between a method that achieved lasting increments of human carrying capacity [agriculture] and one that achieves only temporary supplements [reliance on fossil fuels and other mined substances], we have made satisfaction of today's human aspirations dependent upon massive deprivation for posterity. (p.3)

Catton describes the two basic strategies humans have used to increase the carrying capacity of their environments. The first he calls the 'takeover method'.

Invading and usurping lands already occupied by others was essentially what mankind had been doing ever since first becoming human. Each enlargement of carrying capacity ... consisted essentially of diverting some fraction of the earth's life-supporting capacity from supporting other kinds of life to supporting our kind. Our pre-sapiens ancestors, with their simple stone tools and fire, took over for human use organic materials that would otherwise have been consumed by insects, carnivores or bacteria. From about 10 000 years ago, our earliest horticulturalist ancestors began taking over land upon which to grow crops for human consumption. That land would otherwise have supported trees, shrubs, or wild grasses, and all the animals dependent thereon – but fewer humans. As the expanding generations replaced each other, Homo sapiens took over more and more of the surface of this planet, essentially at the expense of its other inhabitants. (p.26)

We are in our present mess through our intelligence and inventiveness. It could have started as long as 100 000 years ago, when we first set fire to forests as a lazy way of hunting. We had ceased to be another animal and begun the demolition of the Earth (p.6)

We have infringed the environment of other species, unknowingly declared war on Gaia. (p. 10)

There are so many humans now aiming for a first world lifestyle that we are displacing our partners on the planet, the other forms of life. (p. 109)

James Lovelock, reflecting on
'takeover'
The Revenge of Gaia (p.6)

In this takeover process, man was behaving as all creatures do. Each living species has won for itself a place in the web of life by adapting more effectively than some alternative form to a given role ... A given tract of land has greater carrying capacity for the subspecies that can extract more from it than for other portions of the species that happen to be less equipped to exploit it. (p.27)

Around 1800, when takeover was pressing rapidly into its last pristine frontiers, the Americas and Australasia, a new ecological strategy began: the 'drawdown method'.

Industrialisation made use of fossil energy. Machinery powered by the combustion of coal, and later oil, enabled man to do things on a scale never before possible. ... Products of farm and factory could be transported in larger quantities and for greater distances. Eventually the tapping of this 'new' energy source resulted in the massive application of chemical fertilisers to agricultural lands. Yields per acre increased, and in time acreages applied to the growing of food for humans were substantially increased - first by eliminating draft animals and their requirements for pasture land, but also by reclaiming land through irrigation, etc. (p.28)

Using the drawdown method humans rapidly increased – temporarily – the global carrying capacity for humans. The human population had crept to the one-billion mark around 1820; it has

since shot up by a factor of six, with most of the greater rate of increase directly or indirectly attributable to drawdown of finite, exhaustible resources. Once the fossil fuels and minerals begin to run out, this transient carrying capacity will vanish as quickly as it appeared. By Catton's calculations we were using the equivalent of 10 Earths' energy by the 1970s: this contrasts with 1¼ Earths using the conventional model for the ecological footprint.

What is Catton's solution? Catton does not ignore unpleasant facts nor does he insert the too-customary and distracting Pollyanna-ish optimism where none is called for. He suggests that our expectation of a solution or that a deal or a compromise can be worked out is a non-ecological way of thinking that has been superseded with the passing of what he calls 'the age of exuberance'.

Whichever of the two historic approaches we take, either choosing to accelerate drawdown or indulging in additional takeover, our new ecological paradigm enables us to see that eventually we will end up shifting back to the other ... For any lasting solution, we must abandon both of these ultimately disastrous methods. Drawdown bails us out of present difficulties by shortening our future. Takeover was of lasting value earlier in human history, but that time is past. (p.260)

In fact, we have made our continuance of the takeover method dependent upon expanding drawdown – for example, by producing and fuelling tractors to clear and farm more land.

We must learn to live within carrying capacity without trying to enlarge it. We must rely on renewable resources consumed no faster than at sustained yield rates. The last best hope for mankind is ecological modesty. (p.260)

Some readers may quibble with Catton's analysis because his predictions appear not to have come to pass quite as soon as an inattentive reader might expect. But Catton was not wrong in his timing. Since he wrote, we have increased our takeover, notably in rainforests and fisheries. But we have also increased our drawdown, most spectacularly with the rise of capitalism in the former communist states of USSR and China. Both are now drawing down their fossil fuels and agricultural soils and contracting their traditional welfare net, ensuring a supply of cheap labour by reducing the opportunities for self-sufficiency. Australia now sucks in cheap Chinese consumer goods, destroying in the process three

millennia of accumulated horticultural knowledge and soil fertility; our ecological footprint is crunching beneath it the support systems of China as we play our part in bringing its 1.3 billion people closer to ecological ruin.

Readers may also assume that, with rapid developments in technology on the one hand and environmental deterioration on the other, the book would have been superseded by a new generations of writers. Not so: Catton's ecological principles and his analysis are timeless.

More bold than Diamond or Wright, Catton unapologetically paints a picture of the future of humanity and the biosphere as he sees. Like Diamond and Wright he draws on historical examples. But unlike them he does not indulge in the hubris which assumes that past human civilisations provide the only – or even the best – model. Catton would not reject their models but he

requires us first to comprehend the biological and ecological constraints of our species and the biosphere before we consider our social and cultural options.

Catton dismisses alternative energy sources as unsustainable in the long run. This may be because minerals like copper, lithium, silver and platinum which are critical to many high tech alternatives are already approaching exhaustion of known supplies.

Catton makes poetic use of the pluperfect tense, as if he were looking back from an

indeterminate date in the future. He carries this trick off very well, underscoring his historian-like detachment. A refreshing aspect of the book is its clarity of language and thought.

Reading this book is like learning a new language: it levers the reader into a paradigm shift in viewing the world and human society in it. *Overshoot* is not a book for those who must have a happy ending. It is still in print and is truly brain food for anyone wishing to understand our predicament without cultural baggage so that we can identify the behavioral changes that will lead to the best possible future, and initiate them.

Keith Thomas

The Great Australian Dream ... has been created by Generation X and continued by Generation Y. Generation X had cultivated unrealistic expectations in their children by bringing forward their future income through debt to fund luxurious lifestyles. For many it's going to be a nasty surprise when the glittering world they imagine in the future turns out to be unforgiving.

Clive Hamilton

*Canberra Times 22 January 2006
(In fact the rapid rise in expectations possible through going into debt can occur only once: the next generation can't bring forward two generations of income.)*

Child-friendly cities

NSF Members' meeting, November 2005

Dr Paul Tranter explained his research and position at ADFA by pointing out that ADF personnel are more likely now than in the past to work with civilians and so can benefit from an understanding of social dynamics in their work. The ADF is also interested in creating a working environment that is family-friendly.

This report covers in more detail than usual a members' meeting talk and our discussion with the speaker as his important topic has relevance beyond Canberra and even beyond the of design of child-friendly cities.

A child-friendly city is a sustainable city

You won't be surprised to hear that the cities you remember from your own childhood are vastly different from the cities our children are experiencing now. As you read this report reflect on the changes between your childhood and the lives of children you know.

It so happens the criteria for a child-friendly city are a close match to those for a sustainable city. The links are clear: a sustainable city – by definition – must care for its children. A child-friendly environment must be family-friendly and a family-friendly city is a place where family members have the opportunity to spend nourishing time together in a relaxed social space and a clean, natural physical environment. Children need a sense of place to which they can relate positively; the best of such places would also be sustainable.

What do children want?

UNESCO research shows that children, when asked, say they want:

- Food, shelter
- A supportive home environment (so we need to support families)
- Freedom to playfully and safely explore their environment
- A sense of connection with their community (the social) and neighbourhood (the physical).

Why is freedom and connection important?

The physical environment makes sense to children in a social context. The social convention that separate roadways from footpaths is a prime example of a social constraint on children's freedom. Children's physical, social, cognitive and emotional development occur in a social context.

Children should be able to feel they are a fully-accepted part of the community, not irritating extras or strangers.

Physical development

As with most things natural, single activities serve a number of purposes. Take the walk to and from school. This physical exercise also provides a sense of place (which you cannot get as a passenger in a car), social experiences and direct contact with the natural environment.

The parents, friends and grandparents who drive children to school are providing 'serve passenger trips' (defined as dropping off or picking up someone); they are also adding to pollution and traffic congestion as well as depriving children of the relatively unstructured physical activity of the walk to and from school. This is not a child-friendly arrangement!

More serve passenger trips

These trips are not confined to trips to and from school. There are trips to and from sport, music, ballet etc. In fact a large proportion of Saturday morning traffic is serve trips for children. Parents often drive their children to friends' places – something almost unknown in

the childhood of most readers of this report.

Are the serve trip destinations the best places children could be?

Parents are keen to do the best for their children and go out of their way to pay for these additional sport and cultural activities. But there are opportunity costs that are often ignored. These activities are often centralized, taking place outside the neighbourhood so the children miss incidental learning about their neighbourhood and local community.

Is there a solution? The ideal solution is not possible in a city that is not child-friendly. But walking to destinations with children will benefit parents as well; when accompanied by children, parents find it easier to strike up conversations with others – each conversation potentially reinforcing community bonding.

How can we measure children's freedom?

One way of measuring children's freedom is by the licences that we give to children:

- to walk to school alone
- to cross main roads alone
- to catch buses alone
- to travel to places other than school alone
- to cycle on main roads

We cannot live for ourselves alone. Our lives are connected by a thousand invisible threads, and along these sympathetic fibres, our actions run as causes and return to us as results

Attributed to Herman Melville

- to go out after dark.

The proportion of children with licences such as these is an indicator of their freedom.

Comparing Germany, Finland, Holland, England and Australia we find that German children have more licences than Australian children, with the others between the two. And Australian children's freedoms have been decreasing over the most recent decades.

We have become a more car-dependent society and have thoughtlessly succumbed to incorporating our children with us in our dependence.

Schoolgrounds

The loss of children's freedoms to explore their own neighbourhoods is also apparent in reduced opportunities for creative and diverse play in many Australian schoolgrounds.

Children should be able to explore and interact with their friends in the schoolground, yet the opportunity for this is diminishing:

- play time is regarded as 'wasted' time so is sacrificed for more classroom time
- the amalgamation of schools for economic reasons can create a single, more structured environment where child-scale diversity existed before
- there is a more limited and more standardised range of play equipment as items seen as dangerous are removed. Play equipment may be rostered
- many of the most interesting, challenging and stimulating areas of a school's grounds are out of bounds and others have restrictions on their use. Monitoring these restrictions puts teachers in a policing role
- schoolgrounds are designed to make them easier to impress and police rather than more attractive to play in
- keeping schoolgrounds (and school children) neat and tidy is more about creating impressions for managers and parents than enhancing children's play and development opportunities.

Contrasting schoolgrounds

Paul illustrated this part of his talk with examples of the above and contrasted them with Canberra's Orana School. There the children are permitted to

dig up their schoolground, whereas the nearby government school employs a gardener to do the only digging allowed.

Schoolground-type constraints operate at neighbourhood and city scales

Adults restrict children's freedom, partly in an attempt to keep them 'safe'. But adults don't always understand children's need for play, adventure and contact with nature.

Can we compensate for these losses of freedom by providing more adult-organized activities?

Paul's presentation here was a stimulating part of his talk to us. He asked if more adult-organised leisure activities, or providing more virtual experiences for children could compensate for the freedoms we and our cities have taken from Australian children.

We want to keep our children safe, but in doing so, are we exposing them to other dangers and long term problems?

The speed of traffic on most streets is determined to a large extent by the degree to which the residents have psychologically retreated from their street ...

Moving the kids from the roadway to the footpath is like giving the motorist a permission slip to speed in the street ...

Street signs kill intrigue. Standardised traffic control devices and signs do not require the storyteller in our head to be engaged ...

The more neighbourhoods that build the social life of their street, the greater the uncertainty that is created in the motorist's mind even when there is no social activity in the street ...

Humour humanises public space, especially street spaces that have become anonymous and depersonalised.

*David Engwicht
Mental Speedbumps, 2005
From www.mentalspeedbumps.com*

Paul asked us to take our minds back to the favourite play space of our own childhood, when we were about 10 years old. And he asked us whether this was:

- outdoors
- a natural environment
- an environment with water features
- an environment with animals (birds, frogs, insects, snails)
- out of adults' gaze
- dangerous (water, abandoned house or mine, tree climbing, billy-carting, bicycling, long grass).

(One NSF member present – in his 80s – recalled with obvious delight that his

favourite place had all these characteristics.)

Paul's point was that taking risks in play is an important part of childhood. It is so natural, so essential, that children brought up in a low-risk environment will create risk, physical or social (misbehaviour), to meet that need.

The risks and benefits of letting children play freely

The risks include: traffic danger, injury while playing, stranger danger,

The benefits include: fun, cognitive development, emotional development, social skills development, physical development, freedom for parents,

environmental benefits (less driving), community benefits

The risks and benefits of *not* letting children play freely

The risks include: lack of exercise, increased obesity, lack of spontaneous play opportunities, lack of rounded development, traffic dangers around schools, increased stranger danger, undeveloped road sense, in-car pollution, higher levels of pollution, lack of sense of place, depriving children of joy and wonder.

And the benefits: safer (in the short term).

Joy and wonder

Paul referred to the work of the Canadian Catherine O'Brien who wrote in her discussion of bicycling and walking in contrast to motoring that 'Transportation can involve joy, compassion and connection – states of mind that are important for our health: joy, pleasure, satisfaction and fulfilment have slipped from being low priorities to being forgotten all together ...'

But imagine asking a transport planner, who has just finished describing their cost-benefit analysis. Did you consider joy and wonder? You could expect a blank look, but why shouldn't we factor in joy and wonder when designing environments in which children will live, pass through and use?

Deconstructing stranger danger

Why do we have stranger danger? Because the streets are deserted. So if we can repopulate our streets with neighbours who know us and our children they will keep an eye out for the children.

Three broad strategies to make cities more child-friendly

- changing urban form and transport
- improving the design of neighbourhoods
- changing our social values.

Changing urban form

The changes we need to create child-friendly cities include:

- locating schools, shops and services closer to children's homes. This means more neighbourhood shops and schools. And it means we need to keep them alive by using them, even if the 'big box' stores are cheaper and the distant schools have more status
- investing in transport modes other than the private car. The more adults walk and cycle, the more children will too.

Improving the design of neighbourhoods

We need to think through designs that facilitate or inhibit children's freedom, enjoyment, safety, connection with their community and neighbourhood. Examples include:

- lowering speed limits. In Berlin three quarters of the streets (3800 km) have 30 kmh limits so it is safer to walk or cycle. In the US many urban streets have a 25 mph (40 kmh) limit
- increasing children's safety from traffic. Paul recommended the book *Mental Speedbumps* by Paul Engwicht from Brisbane. The book describes how traffic speeds can be reduced merely by having people around - for example, gardening or painting a chair on the nature strip

Traffic world

Uniform

Predictable

Planned

Compulsory

Anonymous

Vehicle-oriented

Technical-oriented

Government-oriented

Avoids conflict

Speed-oriented

Social world

Diverse

Unpredictable

Spontaneous

Voluntary

Personal

People-oriented

Relationship-oriented

Community-oriented

Embraces conflict

Savours the moment

*David Engwicht
Mental Speedbumps, 2005
(From www.mentalspeedbumps.com)*

- having shade trees along footpaths and cycleways
- making it easier for children to connect with their neighbourhood and community. At this point in his talk Paul showed us a picture of a manqué Tuscan home on a deserted Dandenong street. It featured a forbidding spiked steel fence in front of a 'neat' (unnatural and barren) strip of garden and roller shutters down on all windows – a distinctly unfriendly streetfront, which Paul said was opposite a house with a 6 foot wooden fence fronting the footpath. Paul contrasted this with pictures of populated streets with open windows and occupied balconies which create opportunities for passive surveillance
- considering the symbolism of our built environment. Here Paul showed us a picture of an Australian schoolground surrounded by a barbed wire-topped Cyclone fence – with the barbed wire facing inwards. His point was that we need to avoid the message 'keep children in their place'. More than that, our message needs to be positively welcoming.
- having interesting streetscapes for children to play, walk and cycle in. Paul instanced fountains where children can run in the spray and undulating, even hilly parks.

- ensuring that all neighbourhoods are spotted with comfortable places for adults and children to play and relax – places to read under a tree, tables and seats beside water etc. Paul contrasted these with shopping malls where adults are welcome as consumers and children are tolerated only under restrictive conventions and written rules.

The design of parks and playgrounds

Paul described the usual urban planning approach to playgrounds which has a hierarchy of local pocket parks, regional parks and city parks. He quoted Colin Ward who in 1977 wrote 'The failure of an urban environment can be measured in direct proportion to the number of playgrounds.'

The meaning of this counter-intuitive statement was made clear by the preceding sentence 'One should be able to play everywhere, easily, loosely and not forced into a playground or park'.

Designated parks and playgrounds marginalise children from the adult's city; they are a planner's justification for permitting everywhere else to be even less child-friendly. We still need parks and playgrounds, but we also need to think about making our whole city child friendly.

Changing social values

Here Paul asked us to consider three changes we can make:

- slowing down
- challenging the notion of what it means to be a good parent
- moving from individualism to a greater collective responsibility for community and the planet.

Slowing down

Paul recommended Carl Honoré's book *In Praise of Slow* (see box this page) which features slow cities, slow food, slow sex and raising an unhurried child. Slowing down gives children time for unstructured play; unstructured activity is not a waste of time. We Australians are giving our children as young as five stress-related headaches, depression, insomnia and stomach upsets

Challenging what it means to be a good parent

Is the best parent the one who drives their children to structured activity after structured activity? Fiona

Stanley declares 'We should value childhoods for children, rather than for adults'.

Should we be preparing our children for the culturally-preferred adulthood of a big car, two houses, overseas trips and lots of 'stuff' if that future is unsustainable and therefore impossible?

Moving from individualism to a greater collective responsibility

The cult of the individual has become the dominant social ethos and it clearly drives the way we live in cities. We need to recognise and think about the collective impacts of our individual decisions. These impacts may not be the outcomes we want. Think of the parents who drive their children to school to protect them from the traffic dangers created by the parents who are driving their children to school ...

We could also agree collectively to look after everyone's children.

Conclusion: achieving change is possible

We can achieve a fundamental change in our cities by reviving innate values and preferences that already exist within our children. By taking the time to observe our children, we may rediscover:

- the joy of slowness
- the value of community and working together
- our inner child.

If we can do these, we may not only be able to achieve child-friendly cities, but we will create cities that are more liveable, happier and healthier for all city residents.

Points from the discussion between Paul Tranter and NSF members

Children see rushed, alienated behaviour being modelled and so it is embedded in their approach to life. Perhaps a change to government work and family policies is needed to help children to grow up naturally. This appears

unlikely, given the direction of the federal government's IR reforms.

We go to work, we labour, to buy labour-saving devices such as cars – ostensibly so we need to labour less. Cars are the most obvious example.

We have been complicit in allowing the infernal combustion engine to dominate our urban design

Hillary Clinton once said: 'It takes a village to raise a child.' But she left the really interesting question

We have developed an inner psychology of speed, of saving time and maximizing efficiency, which is getting stronger by the day (p.3)

Children are not born obsessed with speed and productivity – we make them that way (p. 216)

Unstructured play ... is not a ballet lesson or a soccer practice ... [it's] digging for worms ... It is about exploring the world, and your own reaction to it, at your own speed (p.231)

... many children dash from one extracurricular activity to the next, leaving them no time to relax, play on their own or let their imaginations wander. No time to be Slow ... children increasingly pay a price for leading rushed lives (p. 218)

Competition spurs many parents to rush their children. We all want our offspring to succeed in life. In a busy world, that means putting them on the fast track in everything – school, sports, art, music (p.216)

*Carl Honoré
In Praise of Slow (2004)*

unanswered: what does it take to create a village? Fiona Stanley asked this question when pointing to the behavioural and emotional problems in young children and adolescents. Despite unparalleled material prosperity, our society is proving surprisingly harmful to many of our young.

A visitor from Canberra's Bluegum School (www.bluegum.act.edu.au) explained how children there use the neighbourhood (the shops, Mt Majura) to supplement their schoolground. She added that Carl Honore's next book will be about children.

Slowness provides the opportunity for creativity of all children to be expressed, not just the older, pushy or bigger ones.

The word 'play' has been taken over by industrialized adults to have connotations of time wasting, frivolous activities in between the real business of life. Adults should play too.

Child-friendly cities – we agree they are desirable, but will it happen? Is it practicable? Peak oil will force us to consider new ways to relate to each other in our community. This will, of necessity, be more local and will change the way we raise and interact with children.

Perhaps we could sue our governments for depriving our children of joy and wonder, opportunities for exercise etc. There are risks associated with play but greater risks in preventing play.

What answers will we get if we ask in 2040 the question about the favourite childhood play space of the generation who are urban children today?

*Porsche's new baby.
An excellent reason to delay yours.
Caption on a two-page colour spread
Australian Financial Review
February 2006*

Keith Thomas

*Paul Tranter has contributed a chapter to the forthcoming book **Creating Child Friendly Cities**, edited by Brendan Gleeson, Griffith University Press.*

If you would like an additional copy (or copies) of this edition of *Nature and Society* so you can pass this article on to others, please contact the NSF office.

Advice from a tree

Stand tall and proud

Sink your roots into the earth

Be content with your natural beauty

Go out on a limb

Drink plenty of water

Remember your roots

Enjoy the view.

What is that?

In the first issue of *Australasian Science* for 2006 Mike Archer, Patricia Mather and Frank Talbot propose that Australia should establish a national institute of taxonomy to reverse the disastrous decline of our taxonomic expertise.

The detailed study of the often tiny differences that distinguish species is not a popular science, unlike the trendy forensics, or environmental science and information technology. Yet taxonomy is 'the integrative basis of biology, underpinning the use and management of all biological resources', and lack of this knowledge is costing the country dearly. Lack of quick and accurate identification of possible pest species is one example.

A case in point is that of a colony of Brazilian red fire ants that was able to establish itself in Brisbane before it was distinguished from its harmless relatives. Early eradication would have been easy; now it will cost about two hundred million dollars – if it is ever achieved at all.

Once pests are really established it is usually impossible to get rid of them entirely. The northern Pacific sea star was noticed in the Derwent estuary in 1986, but was thought to be native. By the time it was identified it had spread to the mainland, probably in ballast water. With an estimated population of a hundred million in Port Phillip Bay alone, it is a serious pest that destroys scallop and mussel beds and other marine resources. It will probably never be eradicated.

There are undoubtedly young scientists who would be fascinated by taxonomic work, but they will not get the chance to do it. With the steady erosion of the traditional career paths for taxonomists in museums, universities, botanic gardens and CSIRO, there are no opportunities. All these institutions are urged to be modern and market-driven, and neither they nor the government can see the need for taxonomy.

To rectify this situation, the proposed Institute of Taxonomy would be modelled on the French National Centre of Scientific Research. A small council, composed of distinguished biologists, would appoint Fellows ranging from post-doctoral to professorial level. The council would pay the Fellows, and negotiate places and facilities for them in existing institutions. This would provide career paths for taxonomists and provide sorely needed taxonomic knowledge for the nation. The estimated cost of about ten million dollars per year could potentially save the country vastly more.

The Woodford Folk Festival 27 December 2005 – 1 January 2006

The Queensland Folk Federation held its first Maleny Folk Festival 20 years ago. They moved to Woodford eight years later, compounding the risks of maintaining a viable annual festival by moving to the farm they had purchased in 1994, near the beautiful Glasshouse Mountains 90 ks north of Brisbane, exclusively for the festival. Its continuing success is such that this year they capped the issue of season and day tickets at 125 000. The community that becomes Woodford includes also over 2000 performers, 140 arts and crafts stallholders, 55 food and drink providers and battalions of volunteers.

The entire village is constructed in December and after 2 January dismantled. The annual tree planting weekend around end-April entails another encampment, with attendant concerts, children's festival, discussions, films and workshops.

After my previous three visits to the festival I could usually explain its distinctive atmosphere, happiness and magic in terms of the celebration of Australian folklore, history, traditions, the talent, humour, beguiling street theatre, natural environment themes, strong indigenous participation and the immense variety of entertainment. There is magic too in the layout of the village, the on-site artworks, the landscape, lighting, informality, hands-on involvement and abundant meeting places.

This time I was accompanied by my wife, daughter and grandson, thereby drawn into circuses, the children's festival, puppetry, dancing and the huge array of visual arts workshops.

Perhaps the most remarkable facets of the Woodford Folk Festival this year were its utopian nature and political significance. I mean 'utopian' to convey (as in Thomas More's *Utopia*) grounding in historical reality, critique of current conditions, awareness of major, emerging problems, and perceptions of preferred futures and the good society.

Making one's choice of the twenty-five performance venues is only easy at 9 am when

Martin Pearson and John Thompson swap banter and wit with their audience at the hillside Troubadour or, alternatively, one can revel in the humour, satire and story telling of the Poet's Breakfast at the Lyceum.

Intersecting with family and friends is relatively easy given central venues such as the Chai Tent and Village Green where there are continuous music, murri and maori dance groups, children's puppetry, Gypsy side shows, street theatre and spacious, shady slopes.

The Aboriginal tradition of mentoring by elders was explicitly recognized across other communities and families. One concert 'Carry it on – an Intergenerational Folk Muse' was a testament to the strength of Australian folk family traditions.

The strongest expansion this year of activities

and attendances was manifestly on the themes of sustainability, the environment, social justice and environmentally-sensitive lifestyles. In addition, the peace movement made a notable resurgence, partly around the anti-terrorism laws and Iraq. In past years, these themes were more or less contained within the Greenhouse venue. Now

they pervade the bigger concert and other venues.

Ian Lowe, Clive Hamilton and Sandy McCutcheon ran a spectacular discussion on Australia's 'Burning Urges' to consume (and adapt to global warming).

There were numerous presentations and debates on renewable energy systems, nuclear power, the politics of oil and water, 'downshifting', intentional sustainable communities, cohousing, community activism, sustainable cities (particularly transport, housing and food supply), water conservation and climate change.

Rolf Von Behrens (ANSI *Sustainability Network*) provided to a keenly interested audience, including several co-workers in the field, a striking survey of online communities and community software that can help build a participatory and sustainable society. He was supported by other sessions devoted to social

I know someone who would never go to a summer cottage or anything like that; she said, 'I don't like outdoor smells.'

This reminded me of a time shortly after 9/11. I was talking to fellow worker at the time about the implications of 9/11, and her response was, 'This really sucks. What if we aren't able to have Christmas this year because of terrorists bombing the shopping malls?'

*Found on the internet
January 2006*

transformation and empowerment through democratic processes.

David Bradbury gave several presentations to overflow audiences of his documentaries on depleted uranium weapons used in Iraq and the environmental management by Defence at Shoalwater Bay. Also in the Greenhouse tent there were superb films about transnational corporations, the ABC's *Australian Story* Story, *Helen's War* (Anna Broinowski's film about her aunt, Helen Caldicott), threats to the culture and environment of Ladakh and the 1955 split in the Australian Labor Party. As one person remarked, 'It's good to know that in other periods there were more important issues, passion and commitment than economic growth.'

Woodford places great store in the natural environment. It seems some 65,000 trees have been planted over the 12

years, accompanied by a legion of nesting boxes, butterfly gardens and careful attention to waste minimisation and recycling. The opening and closing ceremonies this year featured forests and forestry, non-human species and consumerism. The

famous closing fire ceremony, as always, drew on ancient traditions of spirituality and rituals about cycles of the natural world, providing 'beacons to light our way, warn of danger, shed the past, herald news and embrace the future.'

The heart of the festival is spiritual, generous, non-commercial, communal and multicultural. At 11.30 pm on New Year's Eve the Festival calls for three minutes of silence, an age-old tradition to honour absent friends and give everyone the opportunity to join with others in a moment of universal prayer and wishes.

Woodford encourages informed and open discussion, with clear expression of ideas, feelings and aspirations. It regularly attracts leading media and political figures. Premier Beattie has opened the festival several times, while the Queensland Government supports the festival with equipment and infrastructure funding. The demographics are widely representative of Australia and have not changed much in recent years. Hordes of people make the annual pilgrimage for the experience and return home invigorated and refreshed for a new year.

Brett Odgers

Letter to the Editor, *Nature and Society*

Dear Editor,

You have devoted a page or so of the Dec 05/ Jan 06 issue to nutritional problems in Malawi (eastern Africa).

Your sources, nutritionists Stacia and Kristoff Nordin, say that 'the country could provide them with all they needed', by switching to a diversity of local foods.

However, this must only be part of the story; the Nordins fail to mention that Malawi's population is growing apace, now 13 million but projected to reach almost 30 million by 2050! (p. 111, UN State of the World Population, 2005).

Have they researched the sustainable population 'carrying capacity' for this landscape?

Christopher Watson

The humanist concept of sustainable development and the Christian concept of stewardship are flawed by unconscious hubris. We have neither the knowledge nor the capacity to achieve them. We are no more qualified to be the stewards of the Earth than are goats to be gardeners.

*James Lovelock
The Revenge of Gaia (p.137)*



Climate change doublethink

From the New York Review of Books,
12 January 2006

The [2005] hurricanes also demonstrated another fact about global warming, this one having nothing to do with chemistry or physics but instead with politics, journalism and the rituals of science. Climate change somehow seems unable to emerge on the world stage for what it really is: the single biggest challenge facing the planet, the equal in every way to the nuclear threat that transfixed us during the past half-century and a threat we haven't even begun to deal with. The coverage of Katrina's aftermath, for instance, was scathing in depicting the Bush administration's incompetence and cronyism; but Bush – and his predecessors – were spared criticism for their far bigger sin of omission, the failure to do anything at all to staunch the flood of carbon that America, above all other nations, pours into the atmosphere and that is the prime cause of the great heating now underway.

Bill McKibben

Two contrasting green views of wind turbines:

We see beauty through filters shaped by our values and beliefs. Some people think wind turbines are ugly. I think smokestacks, smog, acid rain, coal-fired power plants and climate change are ugly. I think windmills are beautiful.

David Suzuki

Sadly many greens are now squarely behind a final solution to the problem of the rural regions [of Britain]: make them the place for industrial-scale renewable energy and let them be used for wind farming and for growing cash crops for biofuels to keep the city lights glowing and the urban transport running. How can they talk of a green world with policies as black as this?

James Lovelock, *The Revenge of Gaia* (p.111)

NSF e-mail interest groups

To help get relevant information to NSF members we have set up a number of 'interest groups', based on the interests they have listed on their membership forms. The groups are:

- Architecture and design
- Climate change
- Economics/society/politics/culture
- Education
- Farming
- Food security
- Health
- Marine environment
- Peace/war/conflict
- Population
- Social policy
- Transport
- Zero waste and recycling

By targeting our information in this way we avoid burdening members with e-mails that are less relevant to their interests. At the same time, we hope that members receiving the e-mails will be able to use the information provided for the benefit of the environment – lobbying, talking with friends and other public activity. We also see these interest groups as a test for an aspect of the Social Change project (see p.4).

A small number of members who are not on e-mail also receive these bulletins by post. If you would like to receive paper copies of any of the above bulletins, please contact the NSF office. If you have interests in the above areas but have not received any e-mails and would like your name added to any of these lists – again, please let us know.

At least 90 per cent of us in the first world now live in cities or in the suburban areas around them ... only those born before 1950 have seen how splendid [the English countryside] once was and could be again. Because our lives are so wholly urban, democracy ensures the election of governments almost entirely out of touch with the natural world. (p.106)

The green community should have been reluctant to found lobbies and political parties; both are concerned with people and their problems and, like megaphones, they amplify the demagogic voices of their leaders. Our task as individuals is think of Gaia first. In no way does this make us inhuman or uncaring; our survival as a species is wholly dependent on Gaia. (p.143)

James Lovelock
The Revenge of Gaia

Farrago

Bird brains

Traditionally the term bird brain has been derogatory, but now that is being recognised as quite inappropriate. Some birds have been found to have quite sophisticated abilities akin

to primates. There are birds that are tool users, even tool makers; many birds certainly have a vocabulary that can warn of different dangers and be used for communication. Now some birds have been found to have what psychologists consider to be a Theory of Mind, an ability to think about what another bird may be thinking.

In one North American species that catches food, a human observer noted that birds that had been observed caching food by others of their own species, would come back a little later, when the other birds had gone, retrieve their

cache and hide it elsewhere. The hypothesis is that birds that have stolen another bird's cache are only too conscious of the likelihood of their own hidden goodies being stolen, so take measures to prevent theft.

It seems that convergent evolution has occurred between the very different bird and primate brains, with species that are social and long-lived developing similar capacities to deal with the pressures of social living.

Radio National, The Science Show 10 Dec 2005

Counterproductive

In an effort to meet their Kyoto Protocol targets European Union laws require conventional fuels to be blended with biofuels, providing subsidies to do so. Until recently biofuels were made from homegrown canola oil, but increasing demands from the food market has caused price increases. As a result fuel manufacturers are opting for palm and soya oil instead. There are even plans to run power stations on palm oil.

As the price for these alternative oils has increased tropical forests are being felled to make way for oil plantations. Palm oil production is a leading cause of rainforest destruction in south-east Asia, including orang-outang habitats. Soya is the largest cause of rainforest destruction in the Amazon.

New Scientist 19 Nov 2005

Scotobiology

The new name scotobiology, from the Greek scotos, meaning darkness, was coined at a conference on The Ecology of the Night held in 2003.

City lights not only prevent us from seeing the stars, they also disrupt the lives of many creatures.

Brightly lit buildings may be attractive to humans but they are disastrous for many birds, which often cannot see structures around or behind the lights. In North America more than one hundred million birds collide with structures obscured by artificial lighting while on their annual migrations. The great loss disrupts the ecological systems at either end of the migration route.

Plants depend on day length to order their seasonal rhythms. Plants that require short days/long nights bloom in autumn, before shutting down for the winter. If they are illuminated briefly during the night they react to this as two short nights. Under continuous illumination they react as though there is no night. In either case the whole growth cycle is disrupted.

Many mammals, amphibians and insects are also adversely affected by abnormal day and night patterns. In humans hormone regulation and the immune system both suffer. The immune system functions more strongly during the day to protect us from invasion, but at night the killer cells that attack tumours and established invasions are more active. The disruption of such circadian cycles is detrimental to our health, with emotional, physical and psychological damage.

Global Change Newsletter June 2004

Seeing stars

David Crawford, founder and director of the International Dark-Sky Association, based in Tucson, Arizona, is working on a model 'off the shelf' ordinance that other cities anywhere will be able to adopt. The rules are simple. Shine

light down, not up or sideways; don't overlight; turn off lights when they are not needed; use energy-efficient lights and fixtures; impose curfews.

Adopting these rules will not only enable the night sky to be seen, but will save money by reducing electricity consumption. This also reduces greenhouse gas emissions.

Rome is the latest major city to dim its lights. The new program will cut forty per cent off the city's lighting bill. As well as dimming the street lights, signs in shop

windows and hotels will be turned off. Lights on monuments had been dimmed already, but may be reduced further.

New Scientist 19 Nov 2005

Solar rebates

The California Public Utilities Commission has voted in favour of Governor Schwarzenegger's proposals to give rebates for solar systems. Home owners, businesses, farms and public buildings installing solar systems will receive rebates of about one third of the cost of these systems.

The Canberra Times 14 Jan 2006

The total amount of suffering per year in the natural world is beyond all decent contemplation. During the minute it takes me to compose this sentence, thousands of animals are being eaten alive; others are running for their lives, whimpering with fear; others are being slowly devoured from within by rasping parasites; thousands of all kinds are dying of starvation, thirst and disease. It must be so. If there is ever a time of plenty this very fact will automatically lead to an increase in population until the natural state of starvation and misery is restored.

Richard Dawkins, River Out of Eden, page 131-132.



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