

# Nature & Society

The Journal of the Nature and Society Forum

August-September 2010

## Editorial

In the lead up to the Australian federal election voters are being wooed by politicians of various persuasions. Our Prime Minister is promising to move us forward. The Opposition is promising no great big new taxes.

There are problems with both sides. As anyone who has been bushwalking knows you or your leader need to have a good map and know how to read it. You also need a compass and these days probably a GPS, and the skill to use them properly, if your trip is to be safe and successful. Without the knowledge and skill you are likely to end up going around in circles and getting lost: you could be in deep trouble.

Given the general lack of knowledge about where we as a civilisation should be going and how to get there, moving forward is very problematical.

Equally, insisting on avoiding big new taxes is a dangerous policy given what we know about climate change and the dangers of keeping on with business as usual. We really need a big new tax on carbon, one that is big enough to make companies and individuals change their behaviour and their expectations.

Which map and what route do we need to follow to get to a desirable future? This is not just a question for Australians, but for all people everywhere. If we continue to use the generally accepted map, one of everlasting growth, we know the earth cannot support us. The new map must lead to a steady state economy, living within the means our environment provides. We should not be running up debts that future generations will struggle to pay and for which they will curse us. In the worst case, if we keep on our current destructive path, future generations may not exist. What a legacy!

Former Victorian premier Henry Bolte's vision for Australia's future was as the world's quarry.

Unfortunately he was not alone – many people today seem to subscribe to that view. There seems to be no public querying of the appropriateness of that idea. Indeed we seem to want to be a quarry, and to sell off the products from our mining as quickly as possible, no matter how badly they will affect the environment. Nor does there seem to be any willingness to follow the greener path and capitalise on the renewable energy that many Australian scientists have pioneered.

Australia is not alone in being blinded by quarry vision. The Deepwater Horizon disaster in the Gulf of Mexico should be a warning to every country. Continued dependence on oil is leading companies to

explore in more fragile environments or in ever deeper water where our technologies are more likely to fail.

When you realise that a naval submarine would be crushed by the pressure at 900 metres, you get some idea of how strong equipment must be to operate at nearly twice that depth. According to a report in *New Scientist*, 15 May 2010, in 2008 a Society of Petroleum Engineers report warned that the hydraulic rams used in many blowout preventers and intended to be used to shut off oil flow, may lack the capacity to cut through the high-

*Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.*

*Douglas Adams*

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strength drills used in deep-sea operations. Yet in 2009 the Minerals Management Service in the USA granted the Deepwater Horizon operation a 'categorical exclusion' from all environmental reviews under the US National Environmental Policy Act. Hundreds of such waivers have been granted to drilling operations in the Gulf, although such exclusions are meant to be used only in cases where, if any problems occur, the damage is likely to be minimal.

Another curious aspect of the deep-sea drilling rigs and production platforms is that they cannot be anchored to the bottom. They are actually classed as vessels, and kept constantly in motion to stay in the one place. They are governed by the law of the sea, but many of them are registered under flags of convenience, which makes them much harder to police. Put all together, the quest for ever more oil from extreme environments is very likely to lead to more accidents.

When you look at the state of the world, you need to understand that there is nowhere on earth that is safe from human interference. Human activities have adverse impacts throughout the atmosphere, the oceans and in the most apparently pristine areas on land.

Do any of our political parties really have a map to use to lead us forward? Certainly not the major parties. They realise there are problems, but they think they can tweak this or that, put a patch here or a mend there, and continue on with growth. Nothing could be further from the truth. The economic system, and society as a whole, need a major rethink.

This rethink will need to lead to a biosensitive society, in which humans realise that their well being is actually bound up with the well being of all the other living creatures on earth. Without healthy ecosystems in which other creatures thrive humans also will not thrive. Our way forward requires us to recognise and

understand our connections with the living systems of the earth.

This understanding is the subject of Stephen Boyden's booklet *Our Place in Nature, past present and future*, the second edition of which has just been published. Somehow we have to get more people understanding the key points of biounderstanding. Until this happens it is highly unlikely that our civilisation will produce a map that is suitable for us to use into the future. Without this map politicians will continue to wander around, lost in past dreams of moving forward, when in fact we are lost in a maze of misunderstanding.

**Jenny Wanless**

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*Our Place in Nature: past, present and future*  
Second edition

*When we use a computer we don't ask if computer technology makes nuclear annihilation more or less possible, or if corporate power is increased or decreased thereby. While watching television, we don't think about the impact upon the tens of millions of people around the world who are absorbing the same images at the same time, nor about how TV homogenises minds and cultures. When we drive our car we don't think about how pavement suppresses life beneath it. If we have criticisms of technology, they are usually confined to details of personal dissatisfaction. Rarely do we consider the overall political, social, spiritual or economic effects upon our nation or the world.*

*Jerry Mander, In the Absence of the Sacred, 1991, p33*

As well as the message contained in the text, the booklet's cover features a striking photograph taken in Arnhem Land by NSF member Richard Green. It is a beautiful picture in its own right but it is also asking *what is the human place in nature?* The picture shows Richard's sophisticated high-tech helicopter in this apparently pristine landscape.

It took quite a lot of discussion to settle on this picture, and its presence has drawn many comments. It certainly makes you think. That is, of course, the point. What do you think? We

would welcome your contributions.

Copies of *Our Place in Nature* are available from the NSF Office and at our meetings. The booklet costs only \$5 and is post-free to members. Why not purchase several copies to give to friends? The message in the booklet really needs to be spread widely.

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**Patience and persistence**

Knowing trees, I understand the meaning of patience. Knowing grass, I can appreciate persistence.

Hal Boreland

# Nature and Society

Editor: Jenny Wanless

Publisher: Nature and Society Forum

ISSN: 1038-5665

**Nature and Society**© is the journal of the Nature and Society Forum, GPO Box 11, Canberra ACT 2601, and is published six times a year.

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## Where we are

The forestry building of the Fenner School of Environment and Society at the Australian National University in Canberra.

From the entrance, turn left past the office and our office can be found on the right at the end of that corridor. But ring before coming as the office manager works only part time: 6125 2526.

**By car:** There is very limited meter parking 200 metres to the north near Union Court.

**By bus:** The route 3 bus from Civic drops you in Daley Road. Walk 100m south-east to the Forestry building.

**By bicycle:** Plenty of bicycle parking outside our office.

## Nature and Society Forum memberships for 2010-11 are now due

Members received a reminder e-mail last month. Fees and donation arrangements are provided on the back cover of this journal.

## Traditional gifting and modern exchange

With more and more of our daily human interactions based on exchange rather than gifting, we have developed polite ways of being around each other on a daily basis while maintaining an exchange-mediated social distance.

Richard Heinberg, Museletter 215, April 2010

## Coming NSF meetings

For the latest information visit our website and click on 'What's On'. The venue for all the following meetings will be the CSIRO Discovery Centre; turn up the hill from the roundabout on Clunies Ross Drive. Meetings begin at 7:30pm.

**Wednesday 18 August 2010 - Tackling wicked problems through the transdisciplinary imagination** - Presenters: Valerie Brown, John Harris and Jacqueline Russell.

Issues which a society can't resolve within its current methods of problem solving have been labelled wicked problems. Most of the sustainability issues facing the planet today fall into this category. These members of the ANU Human Ecology Forum have put together a book with the key ideas needed for addressing these rapidly changing, complex problems: applying a framework for open and critical inquiry, bringing together multiple knowledges, and recognising the role of uncertainty and ignorance. Fifteen short research studies put these ideas into practice, giving a rich picture of the options available. The presenters are looking forward to a spirited discussion at this meeting. Valerie A Brown. John A Harris and Jacqueline Y Russell are also the editors of the book *Tackling Wicked Problems*, published internationally by Earthscan in June this year.

**Wednesday 15 September 2010 - Annual General Meeting** (6:45pm) followed by a showing of the December 2009 *DIRT! The Movie* from 7:30 -to 9:00pm.

*Dirt* features an international cast including Paul Stamets, mycologist; Vandana Shiva, physicist and environmental activist; Wangari Maathai, founder of the Green Belt Movement; Carlo Petrini, founder of Slow Food; Fritjof Capra, Director of the Center for Ecoliteracy and many others. *DIRT! The Movie* takes you inside the wonders of the soil. It tells the story of Earth's most valuable and underappreciated source of fertility--from its miraculous beginning to its crippling degradation. "Drought, climate change, even war are all directly related to the way we are treating dirt ... The only remedy for disconnecting people from the natural world is connecting them to it again."

In October and November we are planning talks on ethical investment and a 'big picture' overview by Dr Peter Tait on 'Creating change'. More information as we confirm dates and abstracts with the presenters.

## NSF news

### Geoff Mosley

#### Tilting at Windmills?

Geoff Mosley, our July speaker, has been an active environmentalist in Australia for fifty years. He was Executive Director of the Conservation Foundation from 1973 to 1986. He has worked hard to get protection for many wild and scenic places, places with high conservation values. The question mark in the title of his talk is there to ask what have conservation efforts really achieved over that time. The answer is a great deal, but not nearly as much as is needed.

In his talk Geoff showed how conservation efforts have not been aided by the tendency of successive governments to change names, categories and rules, leading to confusion and lost opportunities. Geoff handed out a paper detailing some of that story, which I am not going to repeat here. If you are interested, but could not go to the meeting, you can get a copy of the paper from the NSF office.

In the concluding part of his address Geoff spoke of the need for a major change in emphasis. In 2008 Geoff took on the role of the Australian Director of the Centre for the Advancement of the Steady State Economy. In his opinion conservation organisations will not achieve enough simply by trying to patch up the damage we are doing to the environment. The whole environmental movement really needs to address the problem of our addiction to growth, otherwise it is wasting its time.

It would come as a surprise to most people that John Stuart Mill, back in the 1800s, advocated a stationary state, and the cyclical re-use of resources. In 1971 Sir Garfield Barwick, Director of the ACF, recommended Mills stationary state as the best way forward, saying we should not aim for economic growth, but for long term productivity. He described economic growth and the GNP as 'false gods' that should be abandoned.

In Geoff's opinion the most important conservation task now, while our governments are still accepting Sir Henry Bolte's vision of Australia as the quarry for the world, is to develop an alternative vision for the future of Australia.

Geoff is writing a book on the Steady State Economy and will let NSF know when it is published. We hope he will be able to come back to Canberra to give a talk on this most important matter.

Copies of Geoff's recently published book *Saving the Antarctic Wilderness*, the history of possibly the most successful international conservation effort ever, were sold at the meeting.

*Jenny Wanless*

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#### The boy who harnessed the wind

Another thing that contributes to our energy problems is deforestation. As my grandpa told me, the country was once covered in forests, with so many trees the path grew dark at noon. But over the years, the big tobacco estates had taken much of the wood, using it to flue-cure the leaves before bringing them to auction. Local tobacco farmers used more wood to build shelters for drying the leaves, but these structures never lasted more than a season because of the termites. The rest of the wood

got used by everyone else for cooking since we had no electricity. The problem got so bad near Wimbe that it's not uncommon for someone to travel fifteen kilometres by bike just to find a handful of wood. And how long does a handful of wood last?

Few people realise this, but cutting down the trees is one of the things that keeps us Malawians poor. Without the trees, the rains turn to floods and wash away the soil and its minerals. The soil – along with loads of garbage – runs into the Shire River, clogging up the dams with silt and trash and shutting down the turbine. Then the power plant has to stop all operations and dredge the river, which in turn causes power cuts. And because the process is so expensive, the power company has to charge extra for electricity, making it even more difficult to afford. So with no crops to sell because of drought and floods, and with no electricity because of clogged rivers and high prices, many people feed their families by cutting down the trees for firewood or selling it as charcoal.

William Kamkwamba,  
*The Boy Who Harnessed the Wind*

William Kamkwamba blogs from Malawi at:  
<http://williamkamkwamba.typepad.com/>

*There is no joy more intense than coming upon a fact that cannot be understood in terms of currently accepted ideas.*

*Cecilia Payne-Gaposchkin (1900-1979), An Autobiography and other recollections, 1984*

## Mining Australia

*(We thought the following opinion piece from NSF member Chris Watson would stimulate a range of responses from NSF members, so we invited a few to provide their ideas. We begin with Chris' essay.)*

The current political debate on appropriate taxation levels for mineral profits, sadly, reveals that most Australians see this land as a *quarry or a mine!* The very title of this opinion piece – to set the scene for more comment, facts and figures – comes from the chapter heading of the same name in Jared Diamond's book *Collapse: How Societies Choose to Fail or Survive* (2005). His whole chapter hammered the point of this continent being raped on all fronts.

We must do our utmost to get discussion back on the rails in order to address the overwhelming environmental onslaughts that resource extraction engenders, either directly or indirectly. This mining fetish hastens our own societal crash, already dire because of insidious soil impoverishment.

### Introductory remarks

Just over two centuries ago, Australia was grabbed by the English from its indigenous people to become a penal colony. Not long afterwards the land was exploited for exports of wool and minerals (19th Century gold rushes). Tree-felling was the order of the day for agriculture, and around mines for fuel and props. During the 20th Century most Australians became coastal urban dwellers, but were generally aware that their standard of living was underpinned by income from rural produce and minerals. As an Adelaide boy, who married into a family from the large mining town of Broken Hill, I thought of both agricultural and mining pursuits as being part and parcel of Australian life.

Only in recent times have we realised the implications of deteriorating conditions for agriculture exacerbated by recurrent and often protracted droughts and climate change, to boot. Soil degradation had become the norm due to erosion, salinity and losses of organic matter and nutrients. In fact, Diamond's main emphasis was the tragic societal consequences for Australia of *mining the soil*. Even now, only a few foresee the parlous

prospect for future food supplies, due to the continuing loss of soil nutrients, especially in grain and meat exported to distant markets, either here or abroad. Moreover, there is still no recognition of the impending food shortages resulting from the world-wide drawdown of that major nutrient, phosphorus (*Nature & Society*, Feb-March 2010). Julian Cribb's *The Coming Famine* (2010), on food prospects worldwide, is a very necessary wake-up call.

### Impacts poorly comprehended or understood

Here I can only give a few examples that dominate my current thinking.

I wonder if the oil spill in the Gulf of Mexico has really alerted us to the hazards of off-shore drilling? This time last year that spill not far from the Kimberley coast was certainly *out of sight out of mind*. Even now we are unaware of the consequent

losses to marine life – despite this being the International Year of Biodiversity. I think the belated Federal Parliamentary Inquiry is not looking much further than problems at the rig itself.

Due to scientific endeavour and conservation groups there is now more emphasis on the need for restoration of soils and biodiversity across the continent, especially across southern Australia and throughout the Murray-Darling Basin. It is an ecological tragedy that virtually no freshwater is reaching the Murray mouth.

*It seems that our brains are machine with a propensity to avoid thinking by ourselves, probably the result of optimized survival in a simple world. My guess is, the modern world is way more complex than the Palaeolithic one to which we are adapted. Or maybe complex is not the proper word, since nature's complex is probably little changed, but rather more random, less predictable, as more of the things we are confronted with are generated by our culture, products of our imagination (the financial market, fads, fashion, values and religions, political beliefs, technology, etc.)*

*Posting on Arthur DeVany's blog  
14 April 2010*

How many NSW residents care about the devastation to landscape and public health caused by open-cut coal mining in the Hunter Valley, shown in a recent ABC-TV Four Corners program? Presumably situations like this have become common over the decades. In recent times, I've been horrified by pictures of those huge holes in the Pilbara of Western Australia – being gouged for their lodes of iron ore.

And now to the neglected topic of the nexus between population growth and mining of coal, various minerals, oil, gas and so on. Over the last 200 years much of our population growth would have occurred as a result of agricultural development, but that has undoubtedly run its course. In recent years mining

would have been a major growth catalyst, as well as a political football to encourage both births and immigrants to fill the 'skills shortage'. (Witness, for example, the remarks of Treasurer, Wayne Swan, who said that taxes from mining profits would 'maximise opportunities for growth', on ABC-TV Four Corners, 7 June.) Moreover, I understand that our government is now actively encouraging new mining ventures with subsidies: shades of the land clearing and superphosphate tax subsidies of yesteryear!

For some years Australian population growth rates have been obscenely high, at around two per cent per year, an extra 450,000 persons per year (ABS 3101.0). At this level we are regarded by the United Nations as part of the 'least developed country' category (State of the World Population, UNFPA 2009, p91). Western Australia is now growing at 2.9% per year, presumably as a result of the more localised mining multiplier effect.

Many of us, including governments, piously talk of cutting individual fossil fuel use to counter climate change, but never mention the huge impact of fast rising numbers in a society already at the top of the world-scale in carbon emissions.

*And they were sure and certain,  
forever wrong, but always confident.  
They had no hesitation, they  
confessed no ignorance or error, and  
they knew no doubts.*

*Thomas Wolfe  
You Can't Go Home Again (Ch 4)*

Where is the public debate on the various consequences of mining – in all of its environmental, health and social implications, as well as the pressing need to voice concern about the continent's ecologically sustainable population level (which, no doubt, is already grossly exceeded)? I have been much influenced by the broad ecological wisdom of the North Americans, such as Jared Diamond, Paul Ehrlich (*The Dominant Animal*, 2004) and Ronald Wright (*A Short History of Progress*, 2004). Here, our own Duncan Brown (*Feed or Feedback*, 2003) has set the scene outlining ominous soil nutrient decline, and Reg Morrison (*Plague Species*, 2003) on ever rising population numbers. We must urge Tim Flannery (*Future Eaters*, 1994) to update this seminal book by incorporating his climate change prowess!

### **Going, going, gone: societal crash ahead**

Famine and the rat-race for human survival will come soon enough in Australia and elsewhere, due to the insidious diminution of soil nutrients. The manic pressure for mining from all quarters will hasten the crash because our rapidly growing population (as opposed to one in decline) will devour nutrients a-plenty.

Pressures from multinational mining and financial institutions, with the connivance of governments, business and real estate interests (and tycoons from Western Australia) are set to continue the onslaught on our considerable supplies of non-renewable resources.

The associated deleterious impacts, especially on the environmental and population fronts, are not seen, or largely ignored, by the general populace. In fact most of us see the export dollar – with 'minerals' now some half of exports – as vital to pay for imports (e.g. the plasma TV screen from China!), as well as maintaining one's 'standard of living', payouts from superannuation funds, government pensions and so on.

All this is a far cry from the Australian landscape of 1788, with "human beings existing in an ongoing cycle of relationships to the land to which we belong. The land is our identity, *this land is me.*" (*Looking at you: Looking at me...An Aboriginal History of the South East of South Australia*. Irene Watson 2002).

**Chris Watson**



### **Toys and the imagination**

Developmental psychologists are starting to report something that wouldn't exactly be described as music to the ears of Toys R Us shareholders. They report that limiting the number of toys or games to a very small number is much better for our children, while more choice may actually damage their development. Having too many toys (too many choices) can make a child more timid and unsure, so that they play in short bursts with different toys and become unable to stick to, say, one or two for any length of time. And they don't enjoy their playing as much, spending less time playing in total than those children with fewer toys. It also means that their imagination is not brought into play either. The sheer number of choices overwhelms and overstimulates children, so they find it hard to concentrate on one thing long enough to learn from it. Instead they simply shut down.

Aric Sigman, *The Spoilt Generation*, 2009, p 134

## Response to Chris Watson - 1

There were many points in Chris Watson's opinion piece "Mining Australia" that struck a chord with me. However, unlike Chris growing up in the mining environs of Broken Hill, I grew up on a farm on the Darling Downs, so I come to a similar position from a different background.

I was born in the post WW2 'populate or perish' period, just before Henry Bolte announced his vision for Australia to become 'The Quarry of the World'. We have had such a luxurious life that it has been easy to ignore forward thinkers, and believe that man will conquer all. Certainly mining and agriculture have been 'part and parcel' of Australian life. Farming and grazing were respected occupations, profitable for those who put in hard work, and mining shares were a legitimate supplemental income. Land was still being 'opened up' for agriculture, and mining was necessary for 'growth' and 'wealth', so the vision for the future was that there was still plenty more of everything for everyone in "the Lucky Country". Now I have hard working farming relatives struggling to keep ahead with the demands and complexities involved now in that profession, and feeling their efforts are unvalued. I have relatives who have farms on top of coal seams.

Changing attitudes to achieve a Biosensitive Future from this is no mean feat, particularly in the time frame that we need. Stephen Boyden's recent booklet "Our Place in Nature" gives us a fine tool for action. It is clear and eminently readable, so its messages can be understood by most people. It is affordable and attractive. Above all, it gives a framework for each and everyone for action, across all sectors of society across the world.

Understanding the concepts of a Biosensitive Future are not rocket science and can be grasped even by primary school children. However humans have become increasingly divorced from the reality of us being biological creatures dependent on photosynthesis for our survival. We don't *essentially* depend on iron, copper, coal or any of the other products of mining that we have learned to use so cleverly, though we have *become dependent* on them to exist as we do now. Surely with a world society based on social equity, and with population reduction and control there could be plenty for all (although

many fewer) of us. Life for many of us in Australia 60 years ago was pretty safe and comfortable with much less waste and excess – we would suffer little by slipping "backwards" (to go forward!) and surely we could do better than we did then. Some of us go willingly of our own accord, some of us need to be led there, and some of us have to be dragged kicking and screaming.

Individuals can act to change their personal lifestyle, but rapid and expansive change will not happen without regulation, which means we must influence politics. Facing an election in August gives us a window of opportunity – if we do not effect change this election, we wait three more years. We must have politicians who can help push us to change – we may be only a little nation but a change here especially in mining would have significant influence on the world. We may not yet be "the Quarry of the World" but we are a big player.

*Where tobacco led the way, coal and chemicals followed. And, of course, the fossil fuel industry has been working overtime – and with shocking success – creating doubt about climate change. Techniques appear to be limited only by the imagination and integrity of the campaigners – which is to say, there don't appear to be any limits. One of the best is to just flat-out lie.*

*Richard Littlemore, Manufacturing Doubt, New Scientist, 15 May 2010*

The current threat from mining to some of the richest farming land in Australia on the Darling Downs (and elsewhere) gives me particular dismay – Queensland "the Sunshine State" lagging in solar power generation and incentives, crying poor after enjoying the fruits of digging up huge amounts of resources, and attracting a large population increase with 'the lowest rates

in Australia'! Encouraging squandering without payment is just what we have become good at – wingeing about taxes, saying resources 'belong' to us, and striving to protect our over rich quality of life against those in the world who also want a little bit for themselves.

In essence – encourage wider readership of Stephen's booklet as soon as you can, vote for change and become political.

**Gillian Helyar**

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### Technological progress

Technological progress means making things do more of what we want. When the thing we want is something we want to want, we consider technological progress good. If some new technique makes solar cells x% more efficient, that seems strictly better. When progress concentrates on something we don't want to want—when it transforms opium into heroin—it seems bad. But it's the same process at work.

Paul Graham, [www.paulgraham.com/addiction.html](http://www.paulgraham.com/addiction.html)

## Response to Chris Watson - 2 Quarry or bust?

In these times of global financial crisis and in the lead up to the Federal Election we have been told repeatedly how important mining is for our prosperity. Coal and iron ore being at the top of the pile.

As aerial photographs of the Appalachian mountains in the United States and the Hunter Valley in NSW demonstrate, there are many regions of the planet with a history of human habitation and activity being modified if not degraded aesthetically, functionally and culturally, not to mention the consequences for human health from associated pollution.

Guy Pearse described our resource extraction focus last year<sup>1</sup>. He has noted that mining represents about 15% of Australia's GDP, provides about 1/20 jobs, and most profits go offshore. It is interesting that some Australian companies use renewable energy in their overseas operations – their experience could be invaluable in Australia.<sup>2</sup>

The recent NSF talk by Geoff Mosley noted that much has been achieved over the years for nature conservation, including the establishment of landscape protection reserves as International Union for Conservation of Nature (IUCN) Category V - Protected landscape/seascape. The primary objective is to protect and sustain important landscapes/seascapes and the associated nature conservation and other values created by interactions with humans through traditional management practices. This category aims to encourage the conservation of agro-biodiversity. Category VI areas (Protected Area with sustainable use of natural resources) have as their primary objective, to protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.

1. See *Quarry Vision*, Quarterly Essay 33
2. [guyperse.com](http://guyperse.com)
3. [probonoaustralia.com.au](http://probonoaustralia.com.au)
4. [sixdegrees.org.au](http://sixdegrees.org.au)

Perhaps the recently established three year formal collaboration agreement between IUCN and Rio Tinto should be seen in a positive light.<sup>3</sup>

Federal Government's Senate Select Committee on Agricultural and Related Industries found that "prime agricultural land needs to be protected from mining developments" and that "protecting the most productive agricultural land is an important step in maintaining efficient and quality food production systems and ensuring the nation's food security."<sup>4</sup>

As Guy Pearse has said, referring to climate change, "...we only get one chance and we don't have the benefit of hindsight—just the opportunity of foresight".

Gilles Rohan

## Response to Chris Watson - 3

### Mining: mine or yours?

Should a major part of the world's asbestos be returned for re-burial to Quebec, Canada - to Wittenoom, Western Australia; and what of Australian uranium? Such unappealing thoughts returned as I witnessed evaporation of the "greatest moral challenge of our time".

A decade ago a company, Pangea Australia, was formed to develop a radio-active waste disposal site in Australia: British Nuclear Fuels had combined with Switzerland's Nagra, and

others. It had persistence, subtlety, and unlimited capital for lobbying, but its timing was not right: Both the then Western Australian and South Australian Parliaments passed legislation prohibiting such disposal sites; and Pangea Australia folded when Federal Minister Nick Minchin subsequently declared lack of support. There had been vigorous public debate on the various consequences of such mining - by people who perhaps were Patriots, as in Bill Lines' book. Similar people voted-out Premier Richard Court in 2001 by protesting his plan for, effectively, mining forests south of Perth.

Circumstance sometimes dictates differently. Thirty years ago, public and scientific (ANZAAS) campaigning had been unsuccessful against an Operation Plowshare nuclear harbour excavation at

*The absence of options available to the public to limit the onrush of biotechnology, or even to undertake meaningful public debate on the subject is not unusual. All new technologies are introduced in terms of their utopian possibilities. The downside story is left for a later generation to discern and experience, when the technology is much more difficult to dismantle. And, as usual, the parameters of the debate are set by the people who benefit from a positive outcome: the corporations who will benefit from the rapid expansion of biotechnology.*  
Jerry Mander, *In the Absence of the Sacred*, 1991, p163

Cape Keraudren: In March 1969 the explosion was shelved, on the basis of costs.

### The present?

The company Nagra, out of Pangea, was the seed for present mining giant Xstrata. This burgeoning corporation swallowed Mount Isa Mines with its copper-lead-zinc operations, and reached equal stature alongside Rio Tinto and BHP-Billiton in the mining of Queensland coal and West Australian iron ore. Another world major is gold miner Newmont Mining, Denver-based, and stakeholder in Kalgoorlie's Super Pit: perhaps large enough to be seen from the moon, this produces gold equal to India's imports of it - 28 tonnes a year (mostly for jewelry). Woodside, and others involved in Australia's north-west oil/gas production and prospects, are also major players with clout in public debates.

These miners embrace growth, in tandem with Ponzi-scheme housing and property sectors. As growth progresses, extraction of material incurs greater costs, greater economic and societal risks for Australia's community: corporations minimize their own costs for maximum production. Growth is spectacular: Iron ore production increased 400 per cent over the last 20 years; Coal, about 200 for a similar duration, continues to escalate; Petroleum Gas production is increasing so fast the rate of change is difficult to quantify. All producers have the bit between their teeth, determined to maintain acceleration with "no holds barred" to ensure it. For all major aspects of "mining" - wood chips to coal - Australian Governments have been (still are?) in thrall to corporations which are most involved; more so than to voters - the citizens - who elected them.

A concerned public does presently debate the various consequences of mining; but is facing greater difficulty in progressing appropriate change than it did in 1969, or a decade ago. The debate has manifested itself in great fuss over Burrup Peninsula, Kimberley coastal gas facilities, Ravensthorpe contamination; similarly regarding coal extraction from NSW to the detriment of agricultural land, and fluoride excess from coal-fired power stations on

viculture; "Mining" of forest ecosystems also - logging, bushfires, biodiversity as spelled out in David Lindenmayer's Forest Pattern and Ecological Process. "Mining" appropriately describes our use of water resources, and the Australian Academy of Science has recently conducted a series of public lectures on just this issue.

Options for Australia, other than gorge ourselves on "mining" our unique paddock to exhaustion, have been presented often enough: Doug Cocks' People Policy (1996), Barney Foran and Franzi Poldi's Future Dilemmas (2006), are just two examples. Mark O'Connor and Bill Lines' current (several) editions of Overloading Australia put the issue well - that we are in the process of overloading, and with certainty have overloaded, Australia; and catalogue very plainly the challenges which the public face in having their debate heard.

*Our forefathers showed no more consideration for their descendants than – than we are showing for our descendants when we sit apathetically and lift no finger to forward the League of Nations idea – or, if we disapprove of that, to forward some better alternative. No one can honourably shirk his duty to posterity. A few years ago we were told, with all possible emphasis of appeal, that the most insignificant of us must "do his bit" for the sake of coming generations. Today, when the call of duty is more urgent still – when all who think at all have come to realise, with sad certitude, that if we do not destroy war, war will destroy the coming generation – most of us seem content to be shirkers.*

*Sir Walter Murdoch,  
Western Australian university lecturer  
and essayist,  
writing in the 1920s.*

Things could get much worse. Demographic transition of the past two centuries, fired up by fossil fuels and excess fertility will not cease. Excessive mining, of whatever environmental aspect, will continue while corporations have ascendancy in political/economic circumstance, and foster it. Demographic transition will be fostered towards increase, and as a result almost certainly catastrophic decrease eventually. Demographic stability is the rational alternative: which is a fluctuation - numbers varying in cohesion with a varying environment. Reaching that desirable state could be a rough ride.

**Colin Samundsett**

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### The death of superstition

In 585 BC, the Greek philosopher Thales of Miletus concluded that every observable effect must have a physical cause. The discovery of causality is now taken to mark the birth of science, and Thales is immortalized as its father. But causality also means the death of superstition.

Bob Parks

## Book review

# The Boy Who Harnessed the Wind

**William Kamkwamba and Bryan Mealer, Harper Collins, 2010**

In this fascinating and inspiring book William Kamkwamba describes his family and childhood in Malawi. About the time he finished primary school a disastrous famine hit the country, and his description of that famine is graphic and moving.

At the best of times the Malawians lived for the most part on corn and pumpkin, with some other vegetables. The Malawians have a special word describing hunger for meat, and young William used to satisfy that hunger by hunting birds with his dog.

But when the famine struck, there was no food for humans, dogs or birds. People tried to stifle their hunger by literally tightening their belts, but also by eating inedible corn husks and dirt.

Although William desperately wanted to go to high school he had to drop out. But his hunger for knowledge was just as great as his hunger for food. He was a born scientist and had taught himself about electricity by experimenting with battery operated radios and bicycle dynamos. In a library he found some science texts and studied them. He was particularly fascinated by a book on practical electricity, and despite his very limited English he pored over that book and its diagrams and soon put it to good use. He decided to build a windmill to generate electricity. He started with a small model to prove his idea, then went for the big one. His ingenuity and ability to utilise other people's discards was amazing. He salvaged all manner of equipment from a tobacco estate's dump, and made a big enough windmill to generate usable amounts of electricity. He wired up his parents' home using scrap, including bits of the soles of rubber thongs for switches, so that each room had a small light.

The neighbours, who had all thought William was mad, were soon getting him to recharge their mobile phones, and his parents and the villagers all became very proud of him. William had dreams of bigger windmills to power water pumps, and to provide cheaper more reliable power for the countryside.

When William was about eighteen he was 'discovered', by the Malawian press, and spoke at an international development conference. He acquired international friends and became used to flying, going to America and seeing the Californian windmills. He was also able to go to high school at last, to catch up on his education.

*Jenny Wanless*

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## Biounderstanding

Biounderstanding is understanding of the story of life on Earth, the human place in nature, the biology of civilisation and the health needs and interdependencies of humans and the natural environment. Biounderstanding is short for bio-historical understanding.

Biounderstanding leads naturally to:

- a profound respect for the processes of life
- appreciation that the survival of civilisation will require a shift to a society that is truly in tune with, and sensitive to, the processes of life – that is, in tune with our own biology and with the living world, the biology of civilisation and

the health needs of people and of the rest of the biosphere. We call this a biosensitive society.

Shared biounderstanding among all people is a prerequisite for the transition to a biosensitive society and therefore for the survival of civilisation.

Biosensitive is the word we use to describe a way of life that satisfies the health needs both of people and of the ecosystems on which we depend and of which we are a part.

From our *Biosensitivefutures.org* website

*Once we dispense with the idea that competition is in any sense necessary, or even desirable, new avenues of thought open up. How much is enough? Probably much less than we have now. How hard do we need to work for it? Probably a lot less hard than we are working now. What happens if we don't have enough? Well, perhaps then it is time to try working just a tiny bit harder, or better yet, perhaps it is time to take a few acorns from those who still have too many. Since having too much is such hard work we'd only be helping them. We certainly don't want to keep up with them, because we know where they are headed – a quaint, exclusive little place called collapse. What we should probably be trying to do instead is establish some sort of balance, where enough is, in fact, enough.*

*Dmitry Orlov,  
Collapse Competitively, 2 April 2010*

## Book review

# The Vitamin D Solution: A 3-Step Strategy to Cure Our Most Common Health Problem

By Michael F. Holick, PhD, MD

Hudson Street Press (Penguin Group), New York, 2010. To be published in Australia by Scribe Publications in September 2010 (to include Australian data and information)

How things change. Andrew Weil MD, well-known pioneer of integrative medicine, said of vitamin D in his 1995 book *Natural Health, Natural Medicine* that “if the skin is exposed even minimally to ultraviolet radiation, the body can produce this vitamin from a derivative of cholesterol in the skin ... If you are healthy, eat a varied diet, and spend any time in the sun, you should not have to take supplementary vitamin D”. Contrast this with Weil’s introductory sentence in his foreword to a new 2010 book by Michael F. Holick PhD, MD entitled *The Vitamin D Solution*. Weil now goes so far as to say: “*The Vitamin D Solution* sets a new standard in health and wellness that I believe will change the face of medicine as we know it. This indispensable guide helps you understand why vitamin D is so critical to your overall health”.

Increasingly, reports in newspapers and websites report research studies on the relationship between vitamin D deficiency and various diseases. Holick summarises the matter by stating that “vitamin D can reduce the risk of heart attack by as much as 50 percent; reduce the risk of common cancers of the colon, prostate, and breast by as much as 50 percent; reduce the risk of infectious diseases, including influenza, by as much as 90 percent; reduce the risk of type 1 diabetes by 78 percent in a child who gets 2,000 IU of vitamin D a day in the first year of life; decrease the risk of type 2 diabetes; decrease the risk of dementia and depression; wipe out cases of fibromyalgia that have been misdiagnosed; and dramatically decrease the risk of multiple sclerosis and other autoimmune diseases” (p. 245). Holick does not suggest that vitamin D is a cure-all, but does suggest it is increasingly being understood to have wide ramifications and benefits

for health. This is because it is not really a vitamin, but rather a hormone with the ability to influence metabolic pathways and cellular functions. Our bodies use cholesterol to synthesise vitamin D. He says every tissue and cell in the body has a vitamin D receptor, and perhaps all cells in our bodies respond positively to activated vitamin D.

Michael Holick is a professor of medicine, physiology, and biophysics at Boston University Medical Centre. He has been interested in the importance of vitamin D to human health for more than three decades—hence the book has effectively been in the making for nearly thirty years. Holick is also director of the Bone Health Clinic, and the Heliotherapy Light and Skin Research Centre, at Boston University Medical Centre. His research experience is extensive, and he is a recent recipient

of the prestigious Linus Pauling Institute Prize in health research. As a crusader for sensible sun exposure, he has nevertheless had trouble with the medical dermatology community, who in his view, have been slow to accept the considerable benefits of vitamin D and sensible sun exposure. Holick was amused to learn that when dermatologists in Australia had their own vitamin

D levels checked, 87 per cent of them were deficient!

The evolutionary aspects of vitamin D are covered in a chapter entitled “Fish, phytoplankton, dinosaurs, lizards and you”. Holick says humans have been using sunlight to make the vitamin D needed to regulate calcium necessary for bone health for longer than we’ve been called *Homo sapiens*. Hunter-gatherers were always exposed to sunlight, with their skin pigment evolving specifically for the environment in which they lived, in order to produce enough vitamin D and yet protect them from the damaging effects of excessive sun exposure. This chapter covers the way in which vitamin D is manufactured in your skin from the sun’s UVB radiation (or obtained from dietary or supplementary sources), the creation of a vitamin D metabolite by the liver (25-hydroxyvitamin D), which then travels to the kidneys to be turned into activated Vitamin D (1, 25 dihydroxyvitamin D). These are involved in the regulation of cell growth (cancer prevention), the regulation of immune function (e.g. autoimmune disease prevention), and calcium, muscle and bone health. Significantly, Holick describes research

*The phrase ‘family-friendly’ should be reclaimed. It has been hijacked and distorted to mean: how can we make it as easy as possible to get mothers back into the workplace? What it should really mean, however, is: what working hours and conditions are best for the children in the family?*

Aric Sigman

*The Spoilt Generation, 2009, p82*

showing that not only can the kidneys activate vitamin D, but so can cells of the breast, prostate, colon, lung, brain and skin.

I found it interesting that Holick has also enjoyed some renown for helping animals in zoos, where they are often shaded and protected from sunlight for much of the time. For example, twin polar bears at Denver Zoo were able to walk after he intervened to recommend vitamin D supplementation. He said he likes to think that when such animals feel weak and loose toothed, they muster the strength to shout “Call Holick!”

The implications of vitamin D for human health are many, varied, and profound. Holick estimates the percentage of vitamin D–deficient and –insufficient citizens in the USA to be at least 50 and probably closer to 80 or 90 per cent. The economic implications are very large. For example, one study of vitamin D deficiency in Western Europe concluded that raising the population’s 25-hydroxyvitamin D levels to 40 nanograms per millilitre could result in savings of 187,000 million euros a year. That translates to more than US\$260 billion. Michael Holick suggests the tide may be beginning to turn with respect to the public health ramifications, supported by the rapidly growing research output on vitamin D. In the first six months of 2009—just before his book went to press—at least 2,270 studies were published referencing this vitamin.

The book covers in detail the implications of vitamin D in preventing a range of diseases including various cancers (e.g. breast, prostate, colon), heart disease, diseases related to bones and muscles (e.g. osteoporosis, osteomalacia), autoimmune diseases (e.g. multiple sclerosis, rheumatoid arthritis), seasonal affective disorder (SAD) and depression, and possibly even melanoma (numerous studies show that people who work outside have a lower incidence of melanoma than do people who work inside).

The book also covers well various practical issues related to evaluating one’s risks and the need for sunshine and supplements, with age, place, and race being critical factors. With respect to latitude for

example, multiple sclerosis is about five times more likely to affect you if you live in North America or Europe than if you live in the tropics. In the USA, multiple sclerosis is far more prevalent in states above the 37th parallel than in states below it. “Sensible sun” tables are provided for cities at various latitudes in the USA and Canada, as well as tables for safe and effective sun exposure for different seasons of the year (in the Australian version to be published by Scribe in September 2010, Australian and New Zealand cities and latitudes are used). The various skin types are also considered from the highest to the lowest risk of skin cancer, for use in calculating how much sunshine one should get.

It’s clear Holick’s driving motivation is health-oriented and not commercial in nature—as he says, sunshine is freely accessible and doesn’t ask for money in

exchange for its dose of health. Further, sunshine is the best source for vitamin D. For example, vitamin D made in the skin lasts twice as long in the blood as vitamin D ingested in the diet. Holick and his colleagues are also investigating other photoproducts that come with sunshine, but not from dietary sources or a supplement. Nevertheless, in the winter months above 35 degrees north latitude and below 35 degrees south, you make very little if any vitamin D from sunlight exposure in these months. Supplementation can be much more important in these circumstances. Holick

himself lives in Boston (latitude 42 deg N), and as well as summer sun, takes a supplement year-round of 2,000 IU a day of vitamin D plus a multivitamin containing 400 IU.

The final chapter of the book brings together various practical issues related to vitamin D in a useful Q & A format. Categories covered include general issues, dosage, pregnancy and newborns, and disease and disorders. Here much of the detail throughout the book is nicely summarised in one place. Q and A’s include detail such as “Can you receive vitamin D from sunlight through windows? What impact does cloud cover have?” and “Is there an age at which vitamin D supplementation doesn’t work?”

*From an American viewpoint, there were three problems with nearly all traditional governments: 1. communal ownership of land and religious strictures against selling it, 2. consensual decision-making, and 3. lack of a central hierarchical authority with the power to make binding deals. When Americans made contact with Indians, we wanted to make deals for land and resources. And we wanted the deals now. The traditional forms of Indian governance represented a roadblock to our deal-making and expansion: they were slow, they were democratic, and they would never agree to give up land. So they had to go.*

*Jerry Mander*

*In the Absence of the Sacred, 1991  
p 266*

Dr Holick's barometer of vitamin D health (measured in blood tests via levels of 25-hydroxyvitamin D, indicated as 25 (OH) D on a blood test report) is as follows: vitamin D deficiency (less than 20 nanograms per millilitre); vitamin D insufficiency (21 to 29 ng/ml); an ideal level as 40 to 60 ng/ml; and vitamin D toxicity, which is not seen until the levels are greater than 150 ng/ml. In Australia, the units used (nmol/l) differ from those used in the USA, being 2.5 times the unit used in the USA. Thus an ideal vitamin D level in Australian terms is between 100 and 150 nmol/l, with at least 75 nmol/l being necessary to be above the insufficiency category.

Holick's central thesis that a paradigm shift is underway with respect to the importance of vitamin D in human health is well supported by his book. Nevertheless, in spite of the increasing volume of research appearing in prestigious medical journals, the government and medical profession still seem slow in catching up with the widespread implications, and continue to advocate less than adequate daily allowances. While cautioning against the dangers of sunburn, Holick's book underlines the need for much stronger action to deal with what he describes as a "vitamin D-deficiency pandemic" with "its serious health consequences". As a respected world authority, Holick's book in my view is a good source of detailed information on the topic, including how to get the necessary sunshine and supplementation without increasing your risk of skin cancer or premature aging. The book is recommended in relation to personal and family health, and additionally for its broader ramifications for public health.

**Murray May**

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### **We are not alone**

Nature is trying very hard to make us succeed, but nature does not depend on us. We are not the only experiment.

Buckminster Fuller

### **Letter to the Editor**

...Now that most of the Arctic Sea ice has melted I am reminded of what an oceanographer friend told me years ago. When the Arctic sea ice melts, the open ocean acts like a black mat (so far as solar radiation is concerned), warming surface layers of the ocean. Now the Arctic Ocean is being warmed (each summer) and is switching off surface currents in the Atlantic, and switching on to warming the Southern Ocean. It is melting first the sub-Antarctic glaciers (such as Heard and Kerguelen Islands) then turning to melting Antarctic glaciers themselves. So sea levels will continue to rise ever faster.

This could easily escalate into melting the whole of the Antarctic glacial ice (accumulated in the past 250 000 years), causing sea levels to rise more than 30 metres, inundating much of Australia as a

*Mothers are being kept from their children through a work and daycare ethos under the misguided banner of women's rights and women's choice. Child contact is far more important than either men's or women's rights. Parenthood transcends sexual politics and the child must be the prism through which our rights and choices are now viewed. A complete reversal of policy is needed in our children's best interests. Governments should not be providing incentives for mothers of young children to 'go back to work'. Rather, they should be enabling mothers to stay at home and provide their children with a superior upbringing to that provided by an institution.*

*Aric Sigman*

*The Spoilt Generation, 2009, p 173*

shallow inland sea. Much of the best low-lying land will soon be flooded. We were able to estimate the time left, from the doubling or re-doubling of sea level rise every 2-3 years, as measured at Fremantle. Like the shape of an ice hockey stick, the timing of the initial bending upwards of the rising sea level, as indicated in the graph, surprised everyone. Though 'experts' claimed, when the possibility was first mentioned, that it would take hundreds of years to become a problem.

After initially making strong noises about climate change, Kevin Rudd listened to

economists rather than ecologists, and so began to dream of another 35 million Australians by 2050. Rudd was just too late – that might have been more successful last century, but it is too late now. With the most fertile land inundated (including the irrigated Murray-Darling Basin) how would he feed the extra mouths?

The crucial message of the book *6 Degrees* by Mark Lynas (2007) is that once we go beyond 2°C in surface ocean change, we set off a range of positive feedbacks that no human effort will contain. Nothing has happened since then to alter this unsatisfactory conclusion.

**Graham Chittleborough**

## Farrago

### Zoos and conservation

The Adelaide Zoo is currently hosting two young Giant Pandas that are part of an international breeding program for these iconic animals. Zoos are now very important players in conservation efforts worldwide, with breeding programs aimed at maintaining the genetic diversity of threatened species.

The zoo is also stressing that to conserve threatened species it is essential to provide the human population of the animals' home range with sustainable livelihoods that do not depend on land clearing. To this end they are promoting a scheme whereby zoo visitors can donate money to purchase bees and hives to be supplied to locals – beekeepers tend to protect trees! Alternatively donations can be used to provide biogas stoves to replace the usual wood-fired stoves that lead to deforestation.

Taronga Zoo and its open range twin Western Plains at Dubbo, are running two campaigns to save habitat. One involves handing out plastic envelopes printed with explicit directions for recycling mobile phones, along with the information that mining for Coltan, used in the manufacture of such devices, destroys gorilla habitat. The second campaign is to get palm oil properly labelled as such, rather than being hidden in the innocuous category 'vegetable oil' in lists of ingredients. Orang-utans and Sumatran tigers are both endangered by the destruction of natural forests, which are felled in order to plant palm oil plantations.

### Coal gasification

Cougar Energy has been trialling underground coal gasification near Kingaroy, in Queensland. The process involves burning the coal *in situ* and piping the resultant gas to the surface.

Tests conducted in June found traces of benzene, a known carcinogen, and the toxic chemical toluene in water from bores near the plant, which was subsequently shut down. Rural landholders were advised not to use water from bores within the affected area for either human or animal consumption, until tests showed no further contamination.

*The Canberra Times*, 17 July 2010

### Poisonous whales

Sperm Whales feeding in polar areas, or in equatorial waters, have stunningly high levels of toxic and heavy metals. High levels of cadmium, aluminium, chromium, lead, silver, mercury and titanium in tissue samples taken from nearly a thousand whales over five years were reported at the International Whaling Commission.

Mercury was as high as sixteen parts per million, with the average at 2.4 ppm. Compare this with the warnings to children and pregnant women not to eat swordfish, shark etc if mercury is at one part per million.

The entire range of ocean life is loaded with contaminants released by humans.

*The Canberra Times*, 26 June 2010

*Governments and the oil industry have said for many years these wells are safe, but all technology eventually fails and if the cost to mitigate the failure is prohibitively expensive you don't go forward. Are we willing to put entire ecosystems and the economies of several states at risk? I'd say no.*

*Kieran Suckling  
New Scientist, 15 May 2010*

### Conservation effort

The white-backed woodpecker is widespread from Western Europe to Japan, but it has almost disappeared from Sweden. The Swedes love birds and want to conserve the ones they have, so they are implementing an expensive and comprehensive plan to rebuild the white-backed woodpecker

population in their own country.

The decline has been caused by Swedish forestry practices that have removed most of the dead trees. The woodpecker eats insects that dwell in dead wood, so to encourage the birds' return the Swedes are ring-barking some stands of trees and leaving the trees standing. They are clearing some stands of spruce to encourage more deciduous trees. With other land management changes and a captive breeding program, they devoted the equivalent of \$A30 million dollars to these measures over the period 2005-8, and are giving the same amount again for 2009-12.

This is about the same amount of money that the Australian Government spends on the conservation of the hundreds of Australian bird species that are in need of conservation. To add to the disparity in the Swedish and Australian efforts, we should realise that our birds are a significant asset for Australian tourism. Another contrast between the two countries' approach to conservation is that Sweden set itself specific, measurable and time-based targets by which to assess their efforts.

Hugh Possingham. *Australasian Science*, May 2010

## Reef aerosols

Coral reefs produce a natural aerosol that creates clouds over the ocean and keeps sea surface temperatures stable, with implications for both reefs and rainforests. Large concentrations of aerosol were found in the air above the Great Barrier Reef in the 1970s. Subsequent studies have found that coral algae contain the precursor to dimethylsulfide (DMS), which induces clouds and acts as a climate regulator. The DMS must be emitted into the atmosphere where it oxidises to form small sulphate particles which attract water vapour, making cloud droplets. These help to form stratocumulus clouds over the ocean and keep temperatures down.

When reefs are stressed by excess nutrients, or too much human pressure, they emit less DMS, fewer clouds form, the water gets hotter and the cycle continues.

Busy highways are also a source of particles, but the particles from these are toxic, whereas the reef particles are not. Also, the GBR emits fifty times as many DMS aerosol particles as a highway along the coast would.

*Australasian Science*, June 2010



## Bill Heffernan on food security

By 2050, Mr President, the world will have 9-billion people. According to the science, 50% of the world's population could be poor for water, a billion people unable to feed themselves, 30% of the productive land of Asia, where two-thirds of the world's population will live, could be out of production due to urbanisation and climate change. The food task could double, will double, and possibly up to 1.6-billion people on the planet out of 9-billion displaced.

But what's changed globally is you have this now global snapshot, as it were, with the prediction of 9-billion people by 2050 and 12-billion people by 2070. I just think we need to get past the idea that what's in the fridge is something you take for granted.

What's in the fridge in the future is going to be far more important than what's in the garage, and we ought to start now to plan this, and figure out where we're going to be in 50 or 80 years time, and this is not about alarming anyone, and this is not about the next election. It shouldn't be about a political party. But it is about recognising that [other] countries are taking strategic decisions now about what is their strategic reserves, their strategic assets and they are protecting them. And I have to say I think it's critical and I don't think [Australian] people have been thinking about it.

Senator Bill Heffernan  
addressing the Australian Senate, 2010

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## China plans for massive food imports in perpetuity

**Stephen Crittenden:** One nation that knows it will face a particular problem feeding its population from its own resources is China. China has been prone to famine throughout its history, and as recently as 40 years ago experienced a famine that killed 30-million people. Julian Cribb says the most serious problem China faces today is water.

**Julian Cribb:** The North China plain has been running through the groundwater that it uses largely to support its agriculture, at a frightening rate. The top aquifer is empty, the bottom aquifer is half empty, and when it's emptied it won't refill because the aquifers will collapse. At the same time China has problems from urban sprawl, their cities are spreading out and soaking up a lot of good country that once used to grow rice or vegetables. So really, China has identified food as a risky issue, food security for them in the future.

**Stephen Crittenden:** Several years ago, when Julian Cribb met with members of the Chinese Academy of Sciences, they made some very stark demographic predictions about whether China's agricultural resources would be sufficient to meet its long-term needs.

**Julian Cribb:** I asked them what they thought the population of China would ultimately peak out at, and they said about 1.6-billion, which of course contradicted what the Party line was, which was 1.2-billion. But they were just going on the natural increase that was taking place in China. I then said, what in their opinion was the long-term carrying capacity of China? And they said they thought about 640-million people. So in the opinions of Chinese experts, China may end up with nearly three times as many people as the country can carry, in the long run. And that could spell trouble.

Extract from *Background Briefing*, Radio National, 24 July 2010



Contributions for the next edition of *Nature and Society* are invited now from all members. They should be sent to the editor, Jenny Wanless, 22B Jensen St, Hughes ACT 2605, ph 02 6281 3892, or to our office by 25 September 2010.

Contributions may be sent on paper or electronically - electronic submission is preferred. This journal was prepared using Adobe PageMaker 7.0.2.

Items in *Nature and Society* do not necessarily reflect the opinions of the majority of Forum members, but are published in the hope of stimulating thought and discussion.

Jenny Wanless and Keith Thomas prepared this edition together with the named contributors; Jenny and Keith also contributed the unattributed items and provided the quotations.

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