

Nature & Society

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Editorial

Are you one of those who are grateful that Europe has signed the Kyoto Protocol, but deeply saddened when you hear that, to satisfy the resulting demand for ethanol, rainforests in Malaya and the Amazon are being replaced by palm oil trees and soy beans? Do you nearly cry when someone suggests that, with the decline in oil supplies, Australia should develop a large export trade in ethanol? If we have so much difficulty in getting things right what hope is there?

Maybe you can take comfort from an address entitled *The New Renaissance* given by the author Daniel Quinn to the University of Texas Health Science Center at Houston in 2002. He is hopeful 'because I feel sure that something extraordinary is going to happen in your lifetime—in the lifetime of those who are three or four decades younger than I am. I'm talking about something much more extraordinary than has happened in MY lifetime, which has included the birth of television, the splitting of the atom, space travel, and instant global communication via the Internet. I mean something REALLY extraordinary. During your lifetime, the people of our culture are going to figure out how to live sustainably on this planet—or they're not. Either way, it's certainly going to be extraordinary.'

Quinn has dubbed this extraordinary time (if we get it right) the New Renaissance. The old Renaissance spanned the 14th-16th centuries, when the great revival of art, letters and learning in Europe transformed the medieval world into the modern one. It was an adventurous time inspired by the spirit of discovery. It led to the great sea voyages that enabled the world to be mapped and described. The outburst of interest in natural philosophy and natural history saw the birth of the scientific method and laid the foundations for all the scientific achievements of

succeeding centuries. It led to the Industrial Revolution. Without the almost total change in thinking that was the Renaissance, the modern world could not have developed.

But we have reached the point where the modern world itself threatens our very existence: it has been too successful for its own good. It has enabled our population to expand too much, our consumption to escalate to the point where it is driving the world to destruction.

If you do what you've always done, you'll get what you've always gotten.

Anthony Robbins

We know that many species of plants and animals are driven to extinction each day and think that that is a pity, but do not understand what it means. According to Quinn these

extinctions are inextricably linked to our consumption; they become extinct because in a very real sense we are consuming them to keep ourselves alive in the manner to which we have become accustomed.

This is not just the bushmeat trade, or hunting whales. What Quinn is talking about is something much bigger and more serious, but less obvious. Every time forests are cleared to make way for crops, roads or any other development some species are taken closer to

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extinction. We are not literally consuming them, but we are consuming the resources they need to stay alive. Effectively Quinn says the biomass of over six billion humans is driving two hundred species to extinction each day.

The actual number of species does not matter, what matters is that the extinctions continue and will continue while we continue our present course. That by definition is unsustainable. A finite earth can only sustain a finite amount of biomass. We cannot increase this, although we can certainly decrease it if our actions cause soil degradation and desertification. As we consume other species we will reach the point where there is no more 'spare' biomass to sustain humanity. A great crash will be inevitable.

One of the pre-Renaissance beliefs that has carried on into modern times is that *Humans belong to an order of being that is separate from the rest of the living community*. This, says Quinn, is the single most dangerous idea in the world. It accounts for the general failure to recognise the real implications of all of those extinctions. It enables politicians to say we cannot take measures that are necessary to protect the environment, because it will damage the economy. It is this belief that will have to change if humanity is to have a future, and it is this apparently trivial, but profoundly important change, that Quinn says will be the new renaissance.

People always want Quinn to tell them what the future will be like, and what actions we need to take to get there. He cannot do that; after all medieval people could not have envisaged what life would be like after the Renaissance. Similarly we today cannot envisage what will actually take place or how people will be living in that future. All we can know for sure is that if there are people alive in another century or two, their lives and their beliefs will be very different from ours today. Indeed what Quinn is looking forward to, is the

biosensitive society that Stephen Boyden has dedicated his life to promoting.

We cannot afford the three centuries that the Renaissance took. Luckily, in this case, things move much faster these days. We are probably already in the renaissance making process. There are many people who realise we are not separate from other species. They know that the economy is a subset of the environment and not the other way round. They know that continual growth in population and consumption will be fatal on a finite planet.

The growth in science has been through continued specialisation, but now interdisciplinary teams are becoming quite usual. There is a blurring of boundaries as botany is seen to need chemistry, physics and

maths. The natural world is being seen as a continuum, and although categories are useful tools for studying it, we find that the whole world is connected. We know we have much more in common with other species than we were wont to admit. We cannot treat environmental problems in isolated ways.

When Quinn is asked what needs to be done to ensure a liveable future his reply is to work to change people's minds. That is the major task. Members of NSF surely agree with him. To

cheer us on our way, we are beginning to see even politicians taking notice. Maybe the Renaissance is closer than we thought.

Jenny Wanless

If there are still people here in 200 years, they won't be living the way we do. I can make that prediction with confidence, because if people go on living the way we do, there won't be any people here in 200 years.

I can make another prediction with confidence. If there are still people here in 200 years they won't be thinking the way we do. I can make that prediction with equal confidence, because if people go on thinking the way we do, then they'll go on living the way we do –and there won't be any people here in 200 years.

*Daniel Quinn
The New Renaissance, 2002*

During the Renaissance reason and authority were toppled as reliable guides to knowledge and replaced by observation and experimentation. Without this change, science as we know it would not have come into being and the industrial revolution would not have occurred.

Daniel Quinn
The New Renaissance, 2002

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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.

The proper place for billions of people is "spread out in the future".

DJ in Hawaii
on an internet discussion list 5 September 2006

Forthcoming NSF meetings

For the latest information visit our website www.natsoc.org.au and click on "What's On".

The October and November meetings will both be held at the Fellows Lane Cottage, Building 3T, ANU campus, beginning 7:30pm. A gold coin donation would be appreciated.

18 October 2006 - The microbiology of global warming and its profitable mitigation

It is not possible to avert very serious climate change impacts by merely reducing the rate at which CO₂ is accumulating in the atmosphere. Even stopping all CO₂ releases from all fossil fuels would have only a limited effect as present increases and warming are being substantially driven by releases from tundras, fires and soil/forest carbon respiration as well as by the past emissions coming home to roost after decades-long lag effects. More importantly the increased CO₂ is simply the *symptom* of the breakdown in the natural control processes for the previous upper CO₂ level; it is not the primary *cause* of its own increase.

We have less than ten years to effect the needed changes. Consequently it is critical that we understand what has *caused* global warming and how we can profitably correct it in time. Government and establishment experts simply reinforce the status quo. The challenge for the community and NSF is to support open discussion of these options. This talk by Walter Jehne will contribute to our understanding of these wonderfully complex and interacting phenomena in the context of Earth systems theory.

15 November 2006 - Applying justice frameworks to environmental decision-making

- Have you wondered what your reaction would be to a wind farm proposed in your district? Have you wondered why some communities become divided over a wind farm development proposal? To what extent do you think a fair decision-making process is more important than the actual outcome?

In this presentation Catherine Gross will talk about her research into justice and environmental decision-making. She will give an overview of justice theory (including distributional justice and procedural justice) and will present her findings from a proposed wind farm case study which she conducted in NSW last year.

What's been happening

SEE-Change Centres

The project is continuing vigorously on a number of fronts. Most encouragingly, there are now working committees for three SEE-Change centres in the Canberra suburbs of Lyneham, Hackett and Jamison, with three more likely before the end of the year.. The centres have not opened yet, but each has an enthusiastic committee of local citizens, mainly from outside NSF, largely recruited through the efforts of the three students who letter-boxed a thousand homes and handed out information at suburban shopping centres.

The SEE-Change movement itself – along with the book *SEE-Change, Grey Power and Hope* – was launched by MLAs from each of the three parties at a function at the ACT House of Assembly. The first SEE-Change function was a pre-release screening of the Al Gore movie “An Inconvenient Truth” to 400 Canberrans in a packed cinema.

The Canberra Times has published two feature articles on SEE-Change and copies of these are on the NSF website.

We have sold the book *SEE-Change, Grey Power and Hope** in all the eastern states, with a number of buyers coming back for five or more copies to give away to friends after reading its inspiring message themselves.

A stimulating weekend workshop was held in September to help us communicate the SEE-Change message and to promote the centres.

The ACT government has given NSF a \$5,000 grant specifically to support SEE-Change through this trial period, and individuals have donated a similar amount and also – most importantly – their time and energy to this project.

The principal action in the coming months in the SEE-Change Centres will be on the general issue of climate change and we are assembling a resource base for each of the centres on this topic.

* Copies of *SEE-Change, Grey Power and Hope* are available to NSF members from the NSF office for \$15 each plus \$5 postage and handling. More information is on the NSF website at:
www.natsoc.org.au/html/publications/SEE_book.htm

Sustainability and Health Workshops

You will recall that last year NSF initiated workshops to help community groups devise projects that would enhance both sustainability and people's health. Wendy Rainbird has reported that a number of these projects are now proceeding very satisfactorily, as shown below.

CROWK (Concerned Residents of West Kambah) put in for *Learning From Our Land* and intend to work with the Southern ACT Catchment Group and Urambi Primary School. They received multi-year funding amounting to \$70 000. The project was publicly launched in September and received good press coverage.

CSIRO Land and Water has begun the *Sustainable Youth Filmmakers Workshops* and received three-year funding of over \$50 000. NSF will provide expertise in workshops on student-devised videos about sustainability and health.

Canberra Environment and Sustainability Resource Centre is running *The Art of Moving* project. John Reid and the ANU School of Art will be involved with ACTION buses, walking and cycling groups. They received two-year funding amounting to almost \$73 000.

The ACT Indigenous Project Team received \$20 000 for their *Indigenous Wellness Centre in the ACT*.

The ANU received \$20 000 for a *Sustainability and Health Action Network Website*.

NSF itself received \$5 000 for Allan Fox to do an interpretive plan called *Plan for living in a nurturing environment* for the Kingston Foreshore community environmental zone; this complements NSF's Australian National Sustainability Initiative (ANSI) precinct.

The *Youth Leadership for Sustainability* is another project which received funding to develop facilitator-skills, plus *Youth Workshops* for the 15-25 years age group dealing with sustainable consumption and reducing our ecological footprints. Wendy is representing NSF on the team planning these workshops.

There are a few other innovative projects by different groups, which are still being developed as a result of this NSF project and will be submitted for the next round of grants.

The destruction of the natural world is not the result of global capitalism, industrialization, 'Western civilization' or any flaw in human institutions. It is a consequence of the evolutionary success of an exceptionally rapacious primate. Throughout all of history and prehistory, human advance has coincided with ecological devastation.

*John Gray
Straw Dogs*

Report of the June NSF meeting

Sustainable Housing and Communities

Our August evening seminar attracted a full house to the ANU Emeritus Faculty room. The crowd was treated to a comprehensive evening of information. One attendee commented later that he had come along with a list of questions but did not need to ask any of them, as the speakers covered every point he wanted to raise.

Fiona McIlroy recounted her experiences establishing and living in an intentional community in a fairly isolated rural area of Victoria, where they had to deal with flood, fire and other physical problems. As she commented, fairly ruefully, human nature is also a problem. You may agree with your neighbours over nearly everything, but it is possible for things to go wrong over disagreements on the points of difference. There were debates about everything. Couples broke up. Arguments could go on for months, but they had to be worked through. Sometimes community could be formed out of great diversity: it was necessary to find a common purpose. Many people left. Fiona is pleased that her daughter, who spent her childhood there, has now gone back to resume that life.

Craig Downsborough has been working towards the establishment of a Canberra Co-housing community for some years now. Such projects do take a long time to come to fruition. Co-housing is not a commune; each resident or family will have a private, fully equipped house. However there will be a common house, where residents have, say, a shared meal with shared cooking once a week. There would be space there for guests to stay, so that each individual dwelling does not need that extra space. Buildings would be eco-friendly and high quality. The common house is the heart of the community.

The co-housing movement in the USA now lists several hundred such communities. There are ones in other countries too, eg Denmark. People say that you know you live in a successful co-housing community when it might only take you ten minutes to drive home, but it

will take you 45 minutes to walk from the car to your house.

The Canberra group is aiming to build fifteen to thirty houses. Their key objectives are to aim for social and environmental sustainability with a diverse, tolerant, caring and supportive group of people. Decision making needs to be participatory. Houses will be adaptable, suiting different ages and physical states; the group has received a grant to build six houses for people with a disability.

Annie Mathers from ACTPLA spoke about One Planet Living, a project to build a showcase development in each of the continents. Each project aims to incorporate ten principles including zero carbon emissions, zero waste, sustainable transport and water use along with health, happiness and social equity for the human inhabitants and an environment suitable for wildlife.

Annie showed pictures of BedZed, the Bedford Zero Emissions development in London. It looked rather odd to Australian eyes, and has not managed the zero aims, but has achieved very significant reductions in comparison with normal usage. It provides 92 homes, with 100 workspaces, with the housing divided about equally into private,

government, and places designated for key workers (the ones we can't live without).

The BedZed people have been very good about sharing their experiences about what has worked and what has not, with others. This is useful information for ACTPLA who are looking at the feasibility of developing a similar project in the ACT.

Petar Johnson dealt briefly with the idea of embodied energy. Every manufactured article has caused the expenditure of energy in mining or growing the material used, transporting this material, subsequent manufacture, more transport, etc. The embodied energy is a single measure that shows the energy cost for each product. It provides a convenient way of comparing the environmental load of different products, and enables purchasers to make choices based on that environmental impact.

Petar then went on to describe his experiences with building a home and living at the Mt Campbell Estate near Googong. He pointed out

Sustainable and non-sustainable behaviour patterns are not innate; they are learned and acquired from a young age and are constantly reinforced culturally and socially. Upbringing, education and learning are very important here, with as much attention having to be paid to relearning as to new learning.

German Man and the Biosphere report 1996

that people need to prepare their mind, as well as their plans; many move to a rural subdivision without a clue about living in the bush. This can even apply to local government officers, such as the ones who could only offer exotic trees to the new settlers at Mt Campbell.

This development is registered as a cooperative, but is subject to regulations, building codes and other institutional barriers that have slowed down progress.

The public service attitudes of the management committee have also not helped. Despite this Petar said it is a wonderful place to live, but be prepared to cope with personal barriers and institutional ones.

The last speaker was Derek Wrigley who wryly remarked that we must not depend on technology too much – his computer was in for repairs, so he had an old fashioned poster board. He also said that he does not think a house can be sustainable, but it can be self-reliant and that is what we need to aim for. We have to move from the electricity grid, gas pipes, water mains and sewers. To do this we have to understand the physics of our homes, but also the biology, which is very important.

We are getting close to the distributive power system in which many small suppliers, even individual houses, are connected and can supply power to it or take power as needed. But to achieve this the planning of land subdivisions will have to improve enormously. The sun provides close to two hundred times the energy we need on any one suburban block of land, but if the orientation is wrong, which it usually is, utilising that energy is difficult or impossible.

Jenny Wanless

Reviewers needed

We still need reviews of the two books by the speakers at the July meeting: Bob Blain's *Beyond Capitalism: an experiment in the evolution of money*, and Deirdre Kent's *Healthy Money, Healthy Planet: developing sustainability through new money systems*.

These books are available at the NSF office. You are welcome to borrow them, especially if you are willing to review them.

Book review

See-Change Centres, Grey Power and Hope

Bob Douglas

published by Nature and Society Forum

All of us have favourite books which, to us, just seem to strike the right balance between providing us with the information we want to hand, support for our emerging ideas surrounding an issue, and slightly challenging our assumptions about others. One of mine for a number of years now has been David Yenken and Debra Wilkinson's *Resetting the Compass; Australia's Journey Towards Sustainability*. This book for me was one of the first I'd read which, in a wholly Australian context, provided a well informed view of current human-environment

interactions, and the need to change in order to reverse the direction of our pressures on the world's ecosystems from population growth, consumption patterns and technological change.

Yet this book followed a strong trend of similar books

in not deeply integrating an understanding of our political and economic compasses, and in the process falling short of providing a map to go with the new compass direction. Bob Douglas' book *SEE-Change Centres, grey power and hope* reverses this tradition by weaving together an understanding of political and economic issues underpinning our present unsustainable lifestyles with personal and professional experience, hope for the future, and a set of ideas for action which are exciting, challenging, and completely necessary.

Stepping back for a moment, one must appreciate and acknowledge the place that this book occupies. Thinking again about books such as *Resetting the Compass*, I realise that there is a certain 'evolution' of books which inform, motivate and empower. In sustainability, we can see that many years ago the purpose of such books was to educate and inform as wide a variety of audiences about the ecological and social impacts modern political and economic systems were generating. Other books have engaged in debates about the most appropriate way to understand these impacts. More recently, other books have begun to address more directly the need for action, and worked on

Each individual has to become aware that he or she takes responsibility for the present and future generations and for the environment with every action as well as non-action.

German Man and the Biosphere report 1996

providing readers with practical ideas for personal and community action.

But to actually see this process in place is an incredibly powerful thing. Bob Douglas' *SEE-Change Centres* has emerged out of his understanding and passionate feel for the ideas of Stephen Boyden in his book, *Biology of Civilisation*. With *SEE-Change Centres*, Bob has taken Stephen Boyden's original ideas for 'Life-centres' and developed them into a framework for individuals and communities to take greater control of our future and to develop a new and more locally appropriate sense of communal meaning and purpose.

Bob's central thesis is that Australia, and indeed the rest of the world is at a critical point in which action must be taken to avoid continue destroying the environment upon which we depend for our physical, mental and social survival – but that this action will best be a wellspring of cross-generational culture shift of reassessing our values, activities and relations with one another.

While we may find elements of this thesis in other publications, what is new is that this is the starting point for the book, not the end conclusion, and Bob is able to manage this by recognising ideas such as Stephen Boyden's, and building upon this work in a constructive, exciting, and practical way.

In 118 pages, the book ranges across a wide variety of critical issues surrounding the human predicament, all the while providing good information on issues but never losing sight of the purpose of the book; to pave a more appropriate pathway to a sustainable future for Australians. Presenting and discussing complex and often sensitive political issues (such as foreign policy, nuclear debates, and economic reform) without being a philippic on current political issues with sustainability as the faint backdrop is a valuable feature of this book.

But the ability of *SEE-Change* to not weigh too much into political debates is perhaps the greatest evidence that there is little time left for such debates; Australia, and the rest of the world has approached the point where debates about whether action is needed, and what to do is no longer useful. The value of this book lies in being substantively about what to do, how to do

it and why anyone can be part of an alternative future which will create a better relationship between ourselves as humans, and collectively with the ecosystems of which we are a part.

SEE-Change is valuable not only for its vision for new stories, and creating an alternative future, but so much more importantly because it is a new story, it is the beginning of a new, alternative future, and that is the most exciting thing of all.

Rory Eames

Unequal Health

No matter how wealthy our society becomes, the bigger the gap between rich and poor, the worse it is for people's health. That is the opinion of Michael Marmot, the Professor of Epidemiology and Public Health at University College, London.

The gap between the incomes of rich and poor people is widening in many countries, notably the USA and the UK. This has serious consequences for health, education and life opportunities.

In the Whitehall study run by Marmot in the 1980s, it was found that men who had low measures of control in their work had more heart disease

and worse health in general. With women, the correlation was associated with the amount of control they had at home, but in both sexes disease increased with less control.

There is a social gradient in health; it is not just that the poor have poor health, but that the lower someone's social position is, the worse their health is. The degree of autonomy people have in their work and in their general life is an important indicator of their health and their ability to be full participants in society.

Research on other primates has shown that low status activates the body's two main physiological stress pathways, increasing production of both cortisol and adrenalin, with an increased risk of metabolic disturbances and disease. What is more, these effects in adults also affect their children, passing on the probability that they, too, will be destined not to achieve their potential.

New Scientist, 27 May 2006

"An imbalance between rich and poor is the oldest and most fatal ailment of all republics" Plutarch

We are beginning to realize that the attempt to keep people from experiencing the physical reality of living on the planet has led us to a point where "being cold in winter" and "hot in summer" may be only a small part of the stresses we will be facing. Survival, rather than comfort, could be the question of the day.

*Pat Murphy
New Solutions
16 September 2006*

Book Reviews

Weaving Golden Threads of Sociological Theory by Bob Blain, AuthorHouse, USA, 2004

Bob Blain, one of the speakers at NSF's July seminar, Achieving a Sustainable Economy, is a Professor of Sociology. His book, Weaving Golden Threads, is a distillation of what he sees as the most important contributions (the golden threads) to the field of sociology from various thinkers. He has woven the threads into a simple tapestry of relationships.

The purpose of society (and the study of sociology) is, or at least should be, to achieve human well-being, the wealth of society. To do this he has looked at various factors or variables that influence that well-being. The list of variables includes population size, motivation, technology, codification, centrality, symbols.

Motivation is the force that keeps society together, identified, in ascending order, as coercion, through material rewards, and value commitment to the highest level, good will. Technology progresses from manual to electronic. Codification goes from the simplest categorisation to the heights of science and philosophy. But it is in symbols that we see why Blain has become interested in the monetary system.

The lowest level of symbol is articulate speech, progressing through writing to numbers and finally, money. Symbols are the things that enable us to pass on information, and it is the transmission of information that is vitally important in enabling societies to progress.

The problem with speech is that information is lost as it passes from person to person. Even in one to one conversation information is lost because people have different meanings for the same word. Blain calls this loss of meaning entropy, an increase in disorder. Writing reduces the mangling of messages when communicating with many people, enabling messages to go much further, but the problem of different understandings persists. In addition there is a loss of information, as the way things are said and the body language of the speaker all contribute to the meaning in verbal communication.

Using numbers reduces the amount of information that can be passed on, but also reduces the loss of information. Money is, like words and language, a storehouse of work, skill

and experience. It translates the work of one tradesman into the work of another. It is action at a distance in space and time.

Using all the variables, Blain has produced his Information Chain Length (ICL) Paradigm to explain the well-being of society. Essentially the longer the chain length, the greater the number of people connected, the greater the level of well-being. Some of his conclusions seemed to me to lack an understanding of the natural world and its limitations. For instance he seems to think that the greater the population, the greater the well-being: similarly for urbanisation. Blain goes so far as to claim that Malthus conjured his ideas out of thin air, with no basis in the real world, something I would strongly dispute.

Fortunately Blain shows that a low birth rate is essential for society's well being. He uses life

expectancy as the criterion for well being, rather than GNP per capita. To my relief he points out that above a certain point increases in per capita GNP provide very little addition to life expectancy. He uses New Zealand as an example of a country with lower GNP per

capita, but nearly the same life expectancy as the USA. New Zealand does not have a large population, or very large cities, but it has many other advantages and scores well in national well being.

Overall this book is easy to read, with short chapters, useful diagrams and simple language. It certainly introduced me to a new perspective. I was pleased that the author recognises that rather than scarcity, over consumption is now the problem. He says the old economics of scarcity and competition, with winners and losers, needs to be replaced by an economics of entropy – communication - cooperation – win-win sociological economics.

Blain has produced a game called Cooperation: The Wealth of Nations Game so players can simulate various economic systems. You can download this free from the website <http://hourmoney.org>.

There is little doubt that our current monetary and economic systems produce massive injustice. It is interesting to learn about alternative systems, so I recommend this book for its different approach and its readability.

Jenny Wanless

The bottom line is that people can not be regulated in a way that leads to sustainability. Any efficiency gained in the process is used to increase population and consumption. It's known as Jevons' Paradox"

Jay Hanson

The Hydrogen Economy - The Creation of the Worldwide Energy Web and Redistribution of Power on Earth by Jeremy Rifkin, Putnam, New York, 2002.

The opening chapters of this 2002 book seem oddly out of date: post 9/11 but pre-Gulf War II. After addressing the prospect of our imminent slide down the backside of Hubbert's bell curve, Rifkin talks of the costs to the US of keeping the Persian Gulf open to supply America's unquenchable thirst for oil. If he was horrified about how much it was costing back in 2002, you wonder how he feels now; three years after the US invaded Iraq. \$11 billion a month, I believe.

This is as good as book as any on Peak Oil, though unlike Ken Deffeyes, Colin Campbell, Jeremy Leggett et al, Rifkin is not a petroleum geologist. But he has done his research - his extensive bibliography is evidence enough. Unlike most of the other books, however, *The Hydrogen Economy* does provide a credible solution to the catastrophe confronting the global economy, namely, the end of the age of cheap, conventional oil. Since natural gas will peak not long after oil, alternatives must be found. Rifkin rightly dismisses the use of coal and heavy oils such as oil shale and tar sands because of the entropy factor. Mining, processing and burning these carbonised alternatives will pollute the biosphere and accelerate global warming.

As we all know, hydrogen is not a prime source of energy and cannot replace oil *per se*. But it can be used for storage. Way back in 1923, the distinguished scientist JBS Haldane envisaged a future in which rows of windmills would supply current to electric mains. In times of very windy weather, the 'surplus power will be used for the electrolytic decomposition of water into oxygen and hydrogen' and the gases stored. Haldane said in times of calm, the gases could be recombined in 'explosion motors working with dynamos which will produce electrical energy once more'.

In the meantime, of course, fuel cells have been developed to do the work of these 'explosion motors' but without the explosions. They also

use hydrogen to produce electricity. Just as Haldane saw wind as the primary source of future energy, so too does Rifkin, though he includes other renewables such as photovoltaics, biomass etc. But the theory is quite simple: when excess energy is produced by such means, you use it to electrolyse water to produce hydrogen, then store it until it is needed when it is recombined with air in fuel cells to produce the electricity required.

The beauty of the concept is that it not only rids the US of its dependency on Middle East oil (and hopefully stops it interfering in other people's countries), it is potentially a much more decentralised energy supply system that can be controlled in a decentralised way. The sub-title of the book, *The Creation of the Worldwide Energy Web and Redistribution of*

Power on Earth, is really what the book is all about. Just as the World Wide Web has decentralised and democratised knowledge, so too can a Worldwide Energy Web, one based on renewable energy and using hydrogen as the storage method.

Rifkin calls it 'Reglobalization from the bottom up'. He sees local communities having control of their own electricity supply. Currently, a third of the world has no electricity at all because it is too expensive to extend commercial power lines to them. Yet Rifkin sees no reason why each village cannot produce electricity

through photovoltaics, wind and biomass etc, use it to produce hydrogen, then store it for subsequent use in fuel cells to provide power for homes. Not only electricity, but clean drinking water as a by-product!

In the 1970s, the OPEC price hikes caused far more havoc in poorer countries than in the industrialised world. As we pass Peak Oil, supply will not meet demand and prices will rise. If the developing world is not, once again, to be hit by huge bills for imported oil, they have to have an alternative. Rifkin's concept seems a highly plausible solution, and not just for poorer countries. *Highly recommended.*

Jenny Goldie

What we must have (and nothing less) is a whole world full of people with changed minds, industrialists with changed minds, school teachers with changed minds, politicians with changed minds—though they'll be the last of course. Which is why we can't wait for them or expect them to lead us into a new era. Their minds won't change until the minds of their constituents change.

Changing people's minds is something each one of us can do, wherever we are, whoever we are, whatever kind of work we're doing. Changing minds may not seem like a very dramatic or exciting challenge, but it's the challenge that the human future depends on.

*Daniel Quinn
The New Renaissance, 2002*

Hot rock energy

Hot dry rock several kilometres under the Cooper Basin in South Australia has the potential to produce thousands of megawatts of electricity. A great mass of granite, reaching 270 degrees at a depth of over four kilometres, is insulated by a thick blanket of sediment. A company, Geodynamics Ltd, has drilled two wells; the injection well goes down 4421 metres, the production well 4350 metres. The company is now successfully pumping water down the injection well and getting superheated water suitable for running a standard geothermal power plant from the production well.

The principle of the process is simple. First, an underground reservoir had to be created in the granite slab, so the water could be heated. This was done by pumping water at very high pressure into the rock, forcing apart naturally occurring cracks and fissures. As pressure was released these closed, but slightly misaligned: the process is called micro-sliding. It results in a network of capillaries in the rock, enabling water to pass through it, being superheated in the process.

In the Cooper Basin site micro-sliding created a reservoir seven times larger than expected. The rock is continuously heated by decay of radioactive minerals in the rock. These minerals are generally not water soluble, but anyway the water remains in a closed loop. It is not used directly to power the turbine, but to heat a fluid with a lower boiling point; this fluid drives the turbine.

Geodynamics intends to develop a prototype plant capable of generating 13 MW of electricity by 2007. It has great potential, not least because the electricity produced could provide for the manufacture of hydrogen with almost no by products or pollution. But to achieve its potential, Hot Dry Rock technology (HDR) will require a strong commitment from both government and consumers. The Cooper Basin site could provide enough electricity to cover Australia's present consumption for seventy years. The site's major drawback is its distance from the grid. Smaller sites in the Hunter Valley have the advantage that they are close to existing infrastructure.

Australasian Science August 2006

There is a second, very strong reason for supporting organic growing methods, and that is because chemical farming kills wildlife, by both stealing their habitats, and by poisoning them. So more organics means saving a few species, even if man turns out not to be one of them!

Joseph Harris

From the internet, September 2006

Save the albatross

Albatross numbers have been declining very rapidly. Studies by the British Antarctic Survey in South Georgia have shown that the Wandering albatross there are declining by about five percent each year. The Black-browed and Grey-headed albatrosses are suffering similarly. The decline has been attributed to the bycatch of albatross by the longline fishing industry, as the birds get hooked and drown when they dive for the baited hooks as the lines are paid out. The seas around South America and South Africa are particularly dangerous for them.

When the International Association of Antarctic Tourism Operators (IAATO) started collecting money for the Save the Albatross Campaign in 2002, one of the first recipients of the money raised was a New Zealand company operating

two longline factory ships in New Zealand's Ling and Southern Ocean Toothfish fisheries. They used the money to find a way to prevent the bycatch of seabirds.

While it was possible to manually add weights to the line, to make it sink quickly

below the depth to which albatrosses and the deeper diving petrels would go, this was difficult and dangerous work. Fiskevegn, a Norwegian company, took on the project, producing various weighted lines. Sink rates and bird interactions with lines were carefully monitored.

At the end of the trials it was found that a suitably weighted line, with a single bird scaring streamer, combined with responsible discharge of factory waste from the ship, reduced catches of deep-diving seabirds by 95 percent, and almost eliminated the catch of albatrosses. An additional benefit was that the crew found that the line with integrated weights handled better than the conventional lines that they had used.

One essential, and most difficult to implement, element not mentioned in the list of reforms: A ban on advertising for the purpose of increasing unnecessary consumption. And that will really get up the nose of the advertising, retail, housing, and tourist industries etc.. It is the elephant sitting across the narrow, difficult, essential, path.

NSF member responding to an NSF interest group e-mail about essential measures to mitigate climate change

Aquifers

At a time when aquifers, the great underground water storages provided by nature, are being depleted in so many countries, it is timely to be reminded of their value. Writing in *Australasian Science*, June 2006, Derek Eamus of the University of Technology, Sydney, described the varied roles aquifers play. He was spurred on by the news that two new aquifers have been discovered near Sydney, and the claim that these can be used to drought-proof that city.

Eamus pointed out that Australians have been using aquifers at an increasing rate. Between 1983-4 and 1996-7 water extracted from aquifers had trebled. For NSW the annual extraction had risen from 318 gegalitres to 1008 GL, for Victoria from 206 GL to 622 GL and for WA from 378 GL to 1138 GL. Although water is a renewable resource there is no way such increases can continue for very long: new aquifers will not alter this.

Contrary to popular opinion, ground water is not sitting there inert, awaiting human use. Ground water stores that are in hydrological balance actually discharge water at the same rate it is being recharged. Many trees, such as River Red Gum forests and Western Australian Banksia woodlands have roots that tap into ground water. Other riparian forests along perennial rivers and on

floodplains rely on ground water in dry times. Ground waters also discharge into streams, lakes, seeps and springs that maintain swamps, marshes, wetlands and mound springs.

We have assumed that aquifers have a 'safe yield' and can be used sustainably if we restrict our extraction from them to the amount of recharge. That leaves nothing for all these other users, yet we rely on these others for ecosystem services, such as the prevention of soil erosion, capture of nutrients, effective natural filtration systems, maintenance of bird life, beauty and tourist attractions. All of these suffer if we take out the 'safe yield'.

There is another factor that is hidden and almost unknown. Aquifers host mysterious stygofauna, consisting of many varieties of bacteria, crustaceans and other small creatures.

There is some evidence that the bacteria are of great benefit to us, being able to out compete and nullify the pathogenic bacteria discharged into the environment in our grey water. There is intense research into purifying poor quality water that is deliberately pumped into aquifers for this purpose.

We need to understand all these real, tangible economic benefits provided by aquifers and their ecosystems, rather than think of them as simply new water storages for our exploitation.

If your experience is that your water comes from the tap and that your food comes from the grocery store then you are going to defend the system that brings those to you because your life depends on that; if your experience is that your water comes from a river and that your food comes from a land base then you will defend those because your life depends on them. So part of the problem is that we have become so dependent upon this system that is exploiting and destroying us, it has become almost impossible for us to imagine living outside of it and it's very difficult physically for us to live outside of it.

Derrick Jensen, 12 August 2006
<http://counterpunch.org/engel08122006.html>

Eugenics in the twenty-first century

Evolutionary selection has been radically relaxed in the human species as a result of the development of civilisation, science in general, and medicine in particular. While these advances have hugely benefited current populations, they have to a significant degree released the species from the biological process which created it and maintains its viability. Formerly, natural selection took place largely as a result of differential mortality, but now that most people survive well beyond their child bearing years, selection is determined largely by differential fertility.

Eugenics views itself as the fourth leg of the chair of civilization, the other three being (a) a thrifty expenditure of natural resources, (b) mitigation of environmental pollution, and (c) maintenance of a human population not exceeding the planet's carrying capacity. Eugenics, which can be thought of as human ecology, is thus part and parcel of the environmental movement. Humanity is defined, not as the totality of the currently living population, but as the number of people who will potentially ever live.

John Glad, *Eugenics in the Twenty-First Century*, 2006

The Global Fund

The Global Fund is a unique global public/private partnership dedicated to attracting and disbursing additional resources to prevent and treat HIV/AIDS, tuberculosis and malaria. This partnership between governments, civil society, the private sector and affected communities represents a new approach to international health financing. The Global Fund works in close collaboration with other bilateral and multilateral organisations to supplement existing efforts dealing with the three diseases.

Apart from a high standard of technical quality, the Global Fund attaches no conditions to any of its grants. It is not an implementing agency, instead relying on local ownership and planning to ensure that new resources are directed to programs on the frontline of this global effort to reach those most in need. Its performance-based approach to grant-making is designed to ensure that funds are used efficiently and create real change for people and communities. All programs are monitored by independent organisations contracted by the Global Fund to ensure that its funding has an impact in the fight against these three pandemics.

In August the Global Fund announced that 97 countries have submitted proposals for its sixth round of grants, seeking an additional US\$5.8 billion over five years.

Proposals to the Global Fund are submitted by Country Coordinating Mechanisms (CCMs), committees which include representation from the national government, nongovernmental organisations, donor countries and people living with the diseases.

The Global Fund's available resources for Round 6 received major additional support in August from the Bill & Melinda Gates Foundation. The Foundation announced a new pledge of US\$ 500 million to the Global Fund over five years, with the first US\$ 200 million becoming available to help fund Round 6 proposals recommended by the TRP. The new pledge by the Gates Foundation significantly reduces the resource shortfall the Global Fund faces in order to fully fund Round 6.

Including the new Gates contribution, the Global Fund now has a minimum of US\$ 525 million available for Round 6. It will launch an urgent appeal to its donors for supplemental pledges to ensure that all recommended Round 6 proposals can be funded.

Recently-compiled results for programs financed by the Global Fund are proving that treatment and prevention efforts are achieving significant results. With nearly 400 grants approved to countries worldwide, 544,000 people have begun antiretroviral (ARV) treatment through Global Fund-supported programs; programs providing DOTS (Directly Observed Treatment, Short course) have detected and treated more than 1.4 million cases of tuberculosis and programs to combat malaria have provided 11.3 million insecticide-

treated bed nets to women and children, primarily in Africa.

Information on the work of the Global Fund is available at: <http://www.theglobalfund.org>

Technical progress leaves only one problem unsolved: The frailty of human nature. Unfortunately that problem is insoluble.

*John Gray
Straw Dogs*

NSF member Jeremy Evans supplied this information from Geneva

Abandon hope – for goodness' sake!

The most common feeling I hear from NSF members in private is that the planet is in deep, serious, possibly irreversible trouble. Many of these people are fighting desperately, using whatever tools they have—or rather whatever legal tools they have, which means whatever tools those in power grant them the right to use, which means whatever tools will be ultimately ineffective—to try to protect some piece of ground, to try to stop humans from tormenting some group of plants or animals. Sometimes they're reduced to trying to protect just one tree.

But no matter what we do, our best efforts are insufficient. Those who exert power are committed to activities and ways of living which are destroying the planet.

Frankly, I don't have much hope. But I think that's a *good* thing. Hope is what keeps us

chained to the system, the conglomerate of people and ideas and ideals that is causing the destruction of the biosphere.

To start, there is the false hope that somehow the system may change. Or technology will save us. Or the Great Mother. Or Jesus Christ. Or the government. Or the Greens. All of these false hopes lead to inaction, or at least to ineffectiveness. False hopes bind us to unlivable situations, and blind us to real possibilities.

Does anyone really believe that Gunns is going to stop deforesting because we ask nicely? Does anyone really believe that Monsanto will stop Monsantoing because we ask nicely?

But it isn't only false hopes that keep those who go along enchained. It is hope itself. Hope, we are told, is our beacon in the dark. It is our reason for persevering, our protection against despair (which must be avoided at all costs). How can we continue if we do not have hope?

We've been taught that hope in some future condition—like hope in some future heaven—is a worthy and uplifting response to our present predicament.

Hope is in fact a curse, a bane.

There is a Buddhist saying "Hope and fear chase each other's tails,"—without hope there is no fear—hope leads us away from the present, away from who and where we are right now and toward some imaginary future state.

Here's a definition of hope: hope is a longing for a future condition over which you have no agency; it means you are essentially powerless.

I'm not, for example, going to say I hope I eat something tomorrow. I just will. I don't hope I'll take another breath right now, nor that I'll finish writing this sentence. I just do them. On the other hand, I do hope that the next time I get on a plane it doesn't crash. To hope for some result means you have given up any agency concerning it. Many people say they hope the dominant culture stops destroying the world. By saying that, they've assumed that the destruction will continue, at least in the short

term, and they've stepped away from their own ability to participate in stopping it.

I do not *hope* old growth forests survive. I will *do* whatever it takes to make sure our dominant culture doesn't destroy them.

When we realize the degree of agency we actually do have, we no longer have to *hope* at all. We simply do the work. We make sure forests survive. We make sure quolls survive. We make sure Murray Cod survive. We do whatever it takes.

When we stop hoping for external assistance, when we stop hoping that the awful situation we're in will somehow resolve itself, when we stop hoping the situation will somehow not get worse, then we are finally free—truly free—to honestly start working to resolve it. I would say

that when hope dies, action begins.

I have no patience for those who use our desperate situation as an excuse for inaction. I've learned that if you deprive most of these people of that particular excuse they

just find another, then another, then another.

A wonderful thing happens when you give up on hope: you realise you never needed it in the first place. In fact it made you more effective, because you ceased relying on someone or something else to solve your problems—you ceased *hoping* your problems would somehow get solved through the magical assistance of God, the government, the WWF, valiant tree-sitters, or even the Earth itself—and you just began doing whatever it takes to solve those problems yourself.

When you give up on hope, you turn away from fear. And when you quit relying on hope, and instead begin to protect the people, things, and places you love, you become very far more powerful and effective.

The above was summarised and adapted by Keith Thomas from Derrick Jensen's book Endgame (2006) and his article in the June 2006 edition of Orion magazine.

If they can get you asking the wrong questions, they don't have to worry about answers.

Thomas Pynchon, Gravity's Rainbow (1973)

Sustainable and non-sustainable behaviour patterns are not innate; they are learned and acquired from a young age and are constantly reinforced culturally and socially. Upbringing, education and learning are very important here, with as much attention having to be paid to relearning as to new learning.

German Man and the Biosphere report 1996

Farrago

No panacea

We can now list among life's certainties not only death and taxes, but an endless flow of articles on the newest key to virtually free energy. Granted, such ideas as hydrogen powered cars give meaning to life for entrepreneurs and engineers alike, and hope to the rest of us. Yet, from an ecological standpoint, one is driven to point out that overemphasis on energy panaceas reveals we really don't get it.

Cheaper, limitless energy will not create a viable civilisation in the 21st century. Far from it. From a historical perspective, one can argue that relatively cheap fossil fuels over the last century have got us into the present environmental crisis. Even if humanity, at the eleventh hour, is able to solve the global

warming problem, we are not lacking other means of destroying the ecological systems on which civilisation depends. Habitat destruction, pollution and overfishing of the oceans come to mind.

There is every reason to believe that virtually free energy on tap would only accelerate the process. This will certainly occur unless we foresee the broad consequences of new technologies and act to internalise their cradle-to-grave costs.

The missing element in solving our environmental and resource dilemma this century is not some technological key; it is human restraint and giving nature room to breathe.

Letter by Dennis Sebian
New Scientist 19 August 2006

Political independence and the ability to engage in society has a lot to do with from what position of autonomy do we stand. And if we stand totally dependent on a one or two or three day food supply chain we don't really have any position of political autonomy.

*David Holmgren, Permaculture co-ordinator
7 September 2005
www.globalpublicmedia.com/transcripts/487*

Cleaning up groundwater

Wherever there have been chemical or munitions factories or fuel dumps there will be contaminated groundwater. The sites are often in cities, on ground that is needed for new housing or other developments. The polluted water may be needed to irrigate gardens or parks, or even for food production or drinking water.

The CRC for Contamination Assessment and Remediation of the Environment (CRC CARE) are pioneering techniques to clean up sites contaminated by petroleum and chlorinated compounds. The problem is serious in Australia, but is even bigger in Asia, where there are far more sites, many unidentified.

Every site is unique, with its own particular mix of pollutants, different types of soil and groundwater flow. Solutions have to be tailor made for each site, after establishing the history of the site, and careful monitoring.

CRC CARE are testing a range of methods to treat

the toxins underground. These include oxidation, volatilisation and using microbes, either manipulating naturally occurring ones, or introducing specially selected microbes from other sites.

Research into techniques for cleaning up the mistakes of the past will also enable industry to clean up its wastes in the future, so that they are not released into the soil or groundwater in the first place.

CRC CARE 30 Aug 2006

RUSTLE THE LEAF

BY PONCE & WRIGHT



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Chimps and humans

Nearly forty years of working with chimpanzees has shown Tetsuro Matsuzawa, director of Kyoto University's Primate Research Centre, that chimps can outperform humans on some cognitive tasks.

The two skills in which the captive chimps showed such competence were short-term memory (eg remembering pairs of cards) and recognising faces upside down. The latter is not surprising, as chimps often hang upside down.

Chimps' perception of the world is very similar to ours. They recognise the same boundaries on the colour spectrum as humans do. They also seem to be susceptible to the Stroop effect, the conflict humans experience when they are asked to name the colour of ink in which a word is printed when the word itself is the name of a different colour.

Tetsuro also studies wild chimps at a field station in Guinea. There he found that the chimps make use of about a third of the six hundred forest plants. They have a botanist's memory for the plants, their seasons, locations and uses.

New Scientist 10 June 2006

CO2 emissions are part of the environmental impacts of the nuclear fuel chain, as are the emissions of low-level ionising radiation. However, I have to point out that coal-fired power stations emit more radiation than normally operating nuclear power stations. It is the risks of proliferation of nuclear weapons, terrorism, major accidents and high-level wastes that lift nuclear power into a high danger category all of its own.

*Dr Mark Diesendorf
To NSF office, 21 June 2006*

Two perspectives on cancer

It is worth remembering that while conventional medicine persists in thinking of tumours as foreign objects of mysterious origins, a cancerous growth is a part of the body and an extension of normal bodily processes.

At a very basic level, cancer – the result of an uncontrolled duplication of cells – represents the extreme end of a spectrum of natural physiological functions. It is similar to the process that turns a blastocyst into an embryo and then a foetus then a child. It is the process that takes place in cells and tissues to help heal cuts and wounds. Seen in this way, what we call 'cancer' is really just an arbitrary label given to a normal biological process, taking place at the wrong time and in the wrong place and in a body that has, probably for multiple reasons, failed to keep it in check.

The Ecologist, November 2006

Got a Minute?

In the good old days, if someone could not walk over to disturb you, they had to rely on phone or mail. Now with email, texting, voice mail and mobile phone, they interrupt at will, all the time.

When researchers at the University of California, Irvine, studied the problem they were horrified. They shadowed a dozen information workers and found that they averaged just three minutes of sustained work between interruptions.

The 'always on' culture is costing the economy a great deal, and it costs the individual plenty, too. A study at the Institute of Psychiatry in London found that being bombarded with emails and phone calls has a greater effect on IQ than does smoking marijuana. People are distracted, forgetful, disorganised and impulsive and

cannot get anything done.

Fortunately they recover when on holidays!

Technology responsibly used is a blessing, but used like this it is destructive. People need control over interruptions.

New Scientist 24 June 2006

Drug trials

Whichever company sponsors the trial produces the better antipsychotic drug. That's what researchers writing in The American Journal of Psychiatry have recently concluded.

Psychiatrist John Davis and colleagues analysed every publicly available trial funded by the pharmaceutical industry, pitting five new antipsychotic drugs against one another. Their findings? Nine out of ten trials claimed that the best drug was the one made by the company funding the study. Often, the finding is not outright fabrication. Some industry-funded studies, for instance, use too low a dose of a competitor's drug, while others choose statistical techniques that show that show their drug in the best light. Davis and colleagues estimate 90 per cent of industry-sponsored studies that boast a prominent academic as a lead author are conducted by a company that later enlists a university researcher as the 'author', and noted that such studies amounted to little more than advertisements for the drug.

The Ecologist, July 2006



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, by 15 November 2006.

Contributions may be sent on paper or electronically. This journal was prepared using Microsoft Word and PageMaker 7.0.2.

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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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