

A PLAGUE OF PEOPLE

How a suicidal culture of growth is destroying modern society and the environment

**By
John Robinson**

SMASHWORDS EDITION

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Passe passe the temps

Pendant que je dormais, pendant que je rêvais
Les aiguilles ont tourné, il est trop tard
Mon enfance est si loin, il est déjà demain
Passe passe le temps, il n'y en a plus pour très longtemps
While I was sleeping, while I was dreaming

Clock hands have turned, it is too late
My childhood has long gone, it is already tomorrow
Time passes passes, it won't last much longer.

[Georges Moustaki 1969. Album: Le Mètèque]

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Contents, with comments

Preamble

We face a new situation as the earth is now overpopulated and damaged. In a long career, John faced that situation and developed the integrated science, but has seen the subject and its warnings crushed. A collapse is now inevitable.

Culture stagnation, global collapse

Culture is the total collective experience of a people. Each individual needs to, and wants to, belong. Yet the existing culture must now change fundamentally, in a considerable paradigm shift. That desire to conform to the past pattern has dominated at a time when change was urgently needed.

Sustainability

The concept of sustainability is considered critically. The possibility of sustaining a wild nature is long gone, as is the opportunity to provide a universal high standard of prosperity. The sustainability debate must now consider the number of people that might exist on this planet before collapse becomes probable. Sadly, so-called 'concerned' organisations fail to comprehend the magnitude of the challenge.

The passing years

The recognition of limits has grown from early warnings in the 1960s to the many reports and studies of the 1970s until a comprehensive picture emerged.

The Club of Rome and *The limits to growth*

One key report was the 1972 "Limits to growth". The growing concern and formation of the Club of Rome is described, and the major messages of that report, along with the subsequent gradual turn of the Club of Rome away from the concept of physical limits to growth as the idea was too challenging to their way of life. John was a founding member of the New Zealand branch and attended many Club of Rome discussions in Paris and Rome.

A better way

There has always been a way to deal with the evolving situation and to avoid the threatened storm.

A personal career choice and apprenticeship

John took up the challenge in 1972 and moved to a new career in futures research. His experiences in both New Zealand and Europe follow the development of the new subject and the learning involved in dealing with the complex totality of the global system. His rejection after 1984 provides an example of the way in which that scientific enterprise was crippled and ignored just as many people were mastering the holistic challenge.

Independent science

Science that cannot raise questions is no longer true science. This is a topic that challenges the status quo. The crushing of futures research is an example of how the basic requirement of freedom for scientific research no longer exists.

Economic cycles and excess capital

Since the development of excess productive capacity around 1970 and the move into stagnation and ultimately depression phases of a long-term economic cycle was not appreciated, John described the process in a 1989 publication (summarised here) and forecast excess capital in an unstable system and a global crisis in the early twenty-first century – which came in 2008.

Alternative economics

Building on previous chapters of early economic concepts and the understanding of the economic cycle, a number of requirements for a suitable new system are outlined.

Displacement activities

Both analysts and community organisations have been scared of the picture that emerged with the challenge to the existing way of life, and have withdrawn into displacement activities that provide an impression of doing something while turning away from the reality.

Foreshocks

While the forecast is for a great storm, a global collapse, around 2030, the process spreads over several decades and many foreshocks, warning of what is to come, have been experienced.

After the crash

A hope that the crash might be followed by a suitable reaction and the development of a more sensible and caring society has been tested by considering past regional collapse. It is concluded that the crash will lead, as before, into a period of massive disruption, disturbance and war. The insistence here is on reality and not on foolish optimism.

Triumph of growth and private ownership

The concern of the 1970s was beaten back as growth was even more strongly proclaimed. Many New Zealand happenings, in addition to developments in the USA and Europe, show that the process was worldwide, throughout the developed world.

Oil and the dominance of the motor lobby

Lobbyists have considerable power and the motor lobby has insisted that climate change be effectively ignored as efforts continue to increase the use of roads.

Corporate fascism

An earlier fear that the forecast crash may be followed by fascism has been replaced by the recognition that corporate fascism (the rule of the one-percent, the oligarchy, the military-industrial-financial complex) exists now.

The complete forecast

The various interacting elements of the complete integrated forecast are brought together.

The forecast tested

The forecast, developed for the most part before 1984, includes explicit events and general trends that can be tested in the scientific manner. It is shown that the forecast, and in particular the standard run of the 1972 “Limits to growth”, passes the test.

The coming decades

The foregoing discussion suggests a future from 2013 on of considerable social and environmental disruption, together with a continuing failure to recognise and deal with these problems (seen so graphically in the increase of greenhouse gas emissions since Kyoto in 1990) as the old culture of growth, controlled by the wealthy, continues to dominate.

New Zealand 2030, a lifeboat nation

Those in the most stressed regions will seek an escape to the relatively safe lifeboat places, such as New Zealand. This small lifeboat nation will have to decide whether to be overrun, colonised by the super wealthy, or tightly control borders to protect the natural world and a relatively uncrowded and egalitarian way of life.

What to do

Because of the dismissal of previous warnings, it is now too late to prevent the collapse. This book is not a warning but a description of a chance missed and the inevitable consequences. Given the threat to the natural world, one solution, dismissed here, is for mass suicide. An alternative path, to 'lazy socialism' as suggested in previous chapters, will not be followed. The future is bleak.

Despair

This is a short personal statement of the despair of a scholar who committed his life to an understanding of the global probematique and found himself shunned and the work, although successfully achieved, ignored.

Appendix: Manifesto of the Island Bay World Service

Bibliography

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Preamble

The world is full, of too many people. The new situation calls for a change of behaviour. But instead there is denial. This is the story of warnings ignored and chances missed as peoples have continued the culture of growth in a mad rush to destruction.

It is now forty years since The limits to growth amplified and informed growing concerns over the damage caused by increasing human activities, and provided an estimate of the date when a collapse might occur. That crisis was, then, around sixty years in the future. The world has continued to follow the forecast trends, and that potential crisis is now only twenty years away, perhaps less. Indeed, many recent events foreshadow aspects of the coming storm.

It is also forty years since I shifted my career path from applied mathematics to interdisciplinary futures research. The direction of my subsequent work has been guided by the topic, and I have followed the path among many disciplines while building a comprehension of the many interactions, always seeking – and finding – the overarching themes that made sense of it all.

For the most part information and understanding has been readily available from many scholars and institutions; otherwise I tackled issues myself and, again leaning heavily on the work of others, filled in a number of gaps. Interdisciplinary work such as this is different from the more common reductionist approach with its focus on highly specialised expertise. It involves the collection and

integration of a wide range of information, and often the necessity to apply scientific criteria and judge between competing experts. It is risky, moving outside the comfort zone of a well-trodden specialisation.

This has been a most rewarding experience, providing considerable personal satisfaction as I have found it possible to come to grips with the major trends and forces of our era, as well as to build a unified forecast of expectations that is proving remarkably robust. For the first ten years of my new career the global focus proved a successful career move, as during the 1970s there was considerable activity researching the global scene. After that, and for the remaining thirty years to today, I have experienced career failure. That scientific enterprise was crushed.

One personal experience has been to become an outsider, the other, when groups of friends and relatives talk of their travels and their activities and their work as part of the current society. It is considered rude in polite society to oppose their shared god of growth and to argue that their whole way of life is destroying the planet and ruining the future of our children. Just a few comments can suffice and old friends drift away.

Such an experience is a major part of the story of this past forty years, of a collective behaviour that has formed the world of 2013 and has determined what will happen in the following two decades towards the crisis years. In the early days of futures research there was much talk of paradigm shift, as differing scenarios were constructed, based on different behaviour patterns. It seemed that it would be possible to face the challenge and find a way out. The various alternatives have since dropped by the wayside, as paths not taken. There has been no paradigm shift and the world has relentlessly followed the continuation pathway of growth. Once it was possible to raise questions and to suggest radical change to the direction of societies, in order to avoid the worst of the crunch as the limits to human expansion on a finite planet earth are overtaken. The denial that has dominated since the early 1980s, and the continuing insistence on growth, has defined a path that has instead served to deepen the problem and increase both the probability of collapse and the extent of the consequences.

I have recently written of what happened in New Zealand when two cultures came together[Robinson 2012]. This was a remarkable happening. Stone Age, tribal Maori were faced with a completely new world with the sudden appearance from across the ocean of Europeans, whose civilisation had evolved extensively within Eurasia in the three millennia since Polynesians had lost all contact with the Asian mainland. This was an enormous culture shock, which required considerable change and adaptation. One major consequence was the extension of intertribal war in which some one-third of Maori perished. Faced with that destruction, a number of Maori chiefs came to recognise the need for a fundamental change in their way of life, organisation and governance and called on the British for help.

We too, the total humanity now colonising the whole globe as a collective entity, have come to a crunch point that demands an enormous culture change; that is what a paradigm shift means, it is revolutionary. For many thousands of years peoples have spread across the world. There have been many regional catastrophes, each affecting just one part of humanity, but always there have been new lands to conquer, to settle anew or to take from others. That process is now complete. The world is full and our species has reached its farthest limits. The spirit of expansion and growth is no longer appropriate. It is time to adapt to the successful colonisation of an entire planet, to grow up and to move from adolescence to maturity. The damage of the voracious and powerful species into which we have been born is extensive; the further impact and the consequences will be even greater, of a magnitude that is hard to come to grips with – indeed, most people faced with the information turn away and move to denial. This remarkable and defining feature of modern civilisation remains unrecognised.

This is then the story of wasted years, a wasted lifetime, and a missed opportunity. It tells of the failure of a civilisation and of a science that could have provided so much. There is no possibility that the natural world can survive, no possibility that all people can be provided with a high, 'developed' material standard of living. This global civilisation is not sustainable; the aim should now be to plan for survival in lifeboat national communities.

There is however no general appreciation of that situation, and no possibility of such an 'all-hands-at-the-pump' effort to prepare for the worst. Action will come only after the earthquake has hit, when so many will be suffering and dying, with struggles for the remaining resources led by authoritarian governments. Denial has destroyed an opportunity to act in advance. And denial will not prevent the cataclysm.

"Facts do not cease to exist because they are ignored." [Huxley 1928]

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Chapter: Culture stagnation, global collapse

We live on a finite planet. Each of us knows that, but collectively we, as part of a global civilisation, act as if it were not so, as if there were no limits, with no thought for the morrow. People have come to colonise every part of the world, and eventually there are too many. Human activity has done too much damage to the environment on which we depend, and soon there will no longer be sufficient food; the interconnected system will then collapse into disruption and war. The big question is not whether that will occur, but when.

Warning signs have been evident for centuries, becoming ever clearer and ever more urgent during one recent lifetime. It is 60 years since cartoon-strip swamp possum Pogo returned to find his home being trashed. That recognition of the source of the problem became the famous saying, "I have met the enemy and he is us", in a 1970 anti-pollution poster for Earth Day. [Walt Kelly. The quote first appeared in a lengthier form in A Word To The Fore, the foreword of the book *The Pogo Papers* (copyright 1952-1953) and has been repeated many times since.] It is 50 years since Rachel Carson wrote *Silent spring* [Carson 1962], describing the silence of much of America as agricultural chemicals kill off wildlife, using information gathered from her many concerned colleagues. It is 40 years since *The limits to growth* [Meadows et al 1972] reported modelling that forecast overshoot-and-decline with collapse would follow the passing of global limits, and setting the probable date at around 2030.

It is also 30 years since the short-lived Commission for the Future disappeared and 20 years since the core of New Zealand science, the Department of Scientific and Industrial Research, was disbanded; in 2012 the last residual of science in this country went, leaving only technical services to business and a Royal Society (the supposed pinnacle of New Zealand science) captured and subservient to government funding.

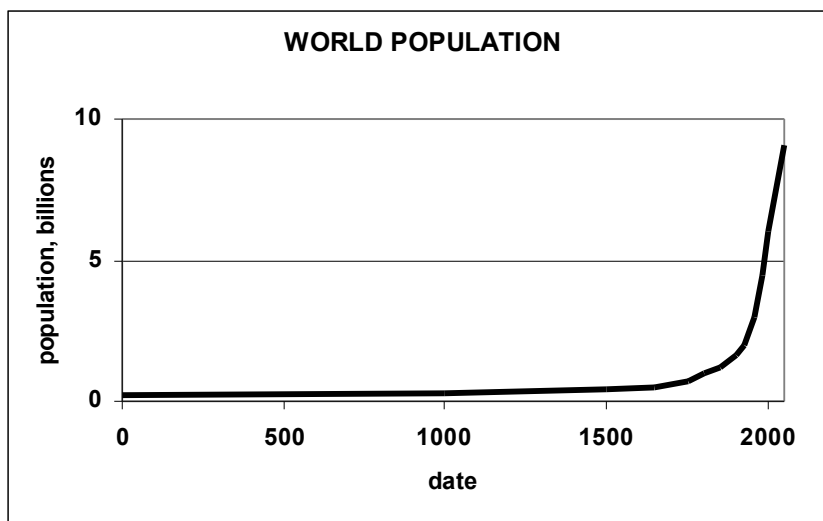
The world population has continued multiplying – by three times in one 80-year lifetime (2.5 billion in 1940 to 7.5 billion in 2040). The existence of limits and the damage being done are ever more obvious – as shown by the oil peak-plateau reached in 2005, the financial crash of 2008, and ongoing climate change that is continually surprising scientists with its extent.

For many thousands of years humans have colonised the earth. Since the milestone of one billion was passed in 1800, the process has accelerated, driven by an increasing capability and a determination to expand and dominate. That insistence on unbounded growth while ignoring the

increasing harm is the “paradox of plenty”. That extraordinary expansion in science and technology has been used just as Pogo described, to trash the planet as “the fruits of human progress are destroying modern society and the environment” [Robinson 1989, cover].

The extraordinary explosion of human numbers is clear in figure 1, which shows the steady increase over recent centuries and the current tripling within one human lifetime [Robinson 2011a, page 54]. Note that the time scale continues past 2000 to a forecast 2050 population. The 9 billion estimate shown here will not, in fact, be reached, as collapse will have brought a reduction in a population die-off – see figure 2.

Figure 1 World population over 2000 years



The process by which mankind has altered the environment dates from the first movement out of Africa, when people hunted many large animals into extinction. The process has never stopped, and there is a truly massive series of species extinctions under way now.

The interaction between humanity and the surrounding world is a two-way process. Changes in the environment and in global climate, such as the end of the last ice age around 10,000-12,000 years ago, determined much of the subsequent development of peoples, of cities and civilisation. At one time, during the cold period between 800 and 500 BCE, the population fell in northern and western Europe but rose around the Mediterranean. The consequences of such change would be far more severe in today’s crowded world where human activity is altering the climate. “If such a disruption of the climate system were to occur today, the social, economic, and political consequences would be nothing short of catastrophic.” [Morris 2010] There is no safety margin once colonisation is complete and all available space is full.

Many times throughout history, cultures have been under pressure and the destruction of local ecosystems has resulted in the collapse of a civilisation. The disappearance of societies from Easter Island, Angkor Wat, Maya cities “overgrown by jungle”, the Viking colony on Greenland and abandoned Native American sites in the USA has all too often followed population growth, climate change and environmental damage. [Diamond 2005]

A particularly relevant case is that of fourteenth century Europe. During centuries of successful economic growth, many cities had formed, supporting larger populations than previously (the European population probably doubled in the warm period of 1000-1300). Then climate change and cooler temperatures brought crop failure, leaving the people susceptible to disease and aiding

the spread of the Black Plague. From 1345 on, around one-third of the European population perished. That disastrous period followed several centuries of economic growth and the growth of population, technology and cities in a pattern very much like our own time. It took centuries for Europe to recover. [Tuckman 1979]

As Barbara Tuckman makes clear, the period following was “calamitous” with considerable disruption, religious extremism and war. Of course warfare was nothing new; the prevalence of war as peoples came to fill the earth is clear. “Armies have plundered the innocent since war began, and probably worked out all the possible variations on savagery quite early on, merely repeating them in resounding counterpoint through subsequent ages of horror.” [Morris 2010]

The message from the past is clear. Periods of successful growth may stress both the environment and human organisation, and move past the limits of sustainability. The climate may change, or be altered by human activity, creating difficult conditions that may lead to social collapse. An aware and intelligent species would recognise the dangers and allow ample safety margins.

None of this is new. These facts are well understood as scientific knowledge has expanded enormously. The present considerable knowledge of this planet and of the histories of past civilisations is built on the combination of information from many scientific disciplines, and popular television series (such as Kenneth Clark’s *Civilisation* and David Attenborough’s *Life on Earth*) have provided a summary of major factors in an easily digestible form.

So too the consequences of continuing along the old pathway are obvious. As people keep multiplying and expanding their activities they eventually fill the earth, taking up every habitat, displacing all other living things, and transforming and damaging the environment. This process has been followed many times in various local or regional settings; it is now under way, and nearing completion, on a global scale. This is then a truly extraordinary time in the story of life on earth, this moment when the earth is finally full.

This event of global significance has been foreseen, warnings have multiplied and the potential catastrophe has been described. Such learning and wisdom should have been a guide, and should guide us now. It does not. The magnitude of the change has been too great for anyone but a scattered few to comprehend. Despite centuries of voyaging around the earth and photographs from space, the general desire is still to increase in numbers, in activities and in the use of resources with never-ending economic growth, with only an empty pretence of environmental concern. What is obvious is not noticed as so many are trapped within old religious and cultural beliefs, unable to see what surrounds them, and the story of the emperor’s new clothes describes the modern age. The whole development of civilisations with their religions and political-economic systems has involved expansion across a world that has, so it is believed by many religions, been produced for the satisfaction of human wants. Yet the process is now complete, and mankind has come up against the absolute limits – now, not in some period far off in the future.

There is no god waiting in the wings to provide a magic rescue package. As Maori society collapsed in a bloodbath in the early nineteenth century, aware chiefs could turn to a greater force, the British Empire, for a way out. But there is no great extraterrestrial force ready to save the planet. Any possibility of dealing with that fundamental challenge must demand the transformation of human activity – a paradigm shift and culture change including a different production and control system, with a new political and economic structure. A confident and aware people, fully alive to the surrounding world, would have faced that challenge wholeheartedly, without fear and with determination to put things right. This is not such a tale. It is not an epic of human striving to overcome that fearful spectre of doom. It is rather the story of a pathetic generation that has squandered the glories of nature and human achievement, and which has hidden its head in the sands from the clear reality and is thus passing a ruined planet on to its descendents.

A successful adjustment to the clearly evident reality would require a complete change of culture, from the “cowboy mentality” of the open range, empty lands and far-off horizons to life in a finite and full-up world [Boulding 1966, noted in Robinson 1989, page 139]. The opposite path has been taken, as in the last century a culture of growth has developed – an insistence on growth, or ‘growthmania’ [Robinson 1989, pages 48 and 88, with reference to Mishan 1970] – and taken complete control. The prevalent growth pattern can be described as following “God and the Sunset Cowboy”.

“A lengthy period of expansion and conquest is now at an end. Yet the experience of the past five centuries, during which time Europeans, and European thinking, spread around the globe, will continue to play an important part in man’s self-image for some time yet. Boulding has aptly named the pursuit of growth as the cowboy economy, yet it is not only in economics that such expansive egocentrism holds sway, for there is a parallel in much religious thought. Teilhard de Chardin for example, looked towards a time when a collective consciousness, a noosphere, would envelope the world in a psychic, as well as a physical domination of man over nature.

Thus we are presented with the picture of a cowboy man-god riding into a glorious psychedelic sunset; a further step in the development of the man equals god equation, which by ostensibly stating that man was created in the image of god has in reality invented a supreme being in the image of man.

This extreme concept, carrying with it a submergence of individuality and of individual responsibility, is in accord with the modern belief in technology as the driving force, the determining factor in our human future. Indeed it is technology which is to provide the global linkage which makes a collective consciousness possible. Man in this picture is forced into a pattern of behaviour which is determined by the former servant; and we are asked to accept such trends rather than to question, to criticize and to demand self-determination.” [Robinson 1980c]

Culture is used here in the widest and most comprehensive sense to denote the full range of individual and social experiences. This is what each person is given by society and upbringing; it is the full range [Robinson 1980c] of social organisation, including ideas, beliefs and religion, and material conditions. The concept is similar to, and includes, religion and world-view – where many ask desperately whether this all there is, or whether there is some alternative universe or heaven, before using that imaginative other to disregard the present reality. Any such overall belief and social system has frequently been labelled as a ‘paradigm’ within futures research, and used to differentiate between possible future scenarios, each based on some preferred behaviour pattern.

Despite the clearly evident need to change in a fundamental way, to move from the growth pattern that was so successful, and so needed after the ravages of the Second World War, and to adjust to the human colonisation of the whole earth that has become crowded and damaged, the world economy is focussed on ‘growth’. Even critics hold on to that simplistic desire as they want to move from a failing system to some preferred alternative, which may then deliver more ‘growth’ – relabelled as ‘organic growth’, ‘sustainable growth’, ‘green growth’ or similar, as if the label makes the growth benign and no longer a terminal cancer. This is a human plague, a world of lemmings heading for the cliff edge and, for the most part, arguing on how best to get there faster. The common denominator is greed amongst the leaders of the pack, with general acceptance of the predetermined path and subservient obedience by the masses.

Like so many other species, we are social animals, depending on the human capacity for cooperation for everyday living and for our collective success in the process of evolution. Human society has developed from small family groups to connected and interactive tribal organisations, and then to nation states which build considerable collective enterprises such as city-states and nations, and to thus provide a setting for improved agriculture and manufactures, for trade across

large distances and protection against threats from other societies. While that collective has now become global in scope, people still live, share and react within tribal groupings, divided within each nation into sub-cultures by different experiences and desires, and thus forming a complex class structure.

Within each country a collective identity and shared beliefs provides the glue necessary for social cohesion. This will frequently include a political ideology. Often religion plays a significant role, with claims that a ruler is the chosen one, set in place by a higher authority, a god. The need for some overall, organisation at the collective, national level is most often satisfied by a dominant family (royalty in a monarchy), tribal group, or class (in a republic). Democratic elections are frequently fought between class groups and are expression of social class war among groups with different aspirations (such as either to protect inherited wealth or to divide wealth and opportunity fairly) – all within the greater national framework.

A collective identity is strengthened by the solidarity of struggle, joining together in a collective enterprise to defeat a common foe. Often war is the great unifier, as the threat of attack is a common means of building loyalty towards a dominant class – the threat of terrorism was used in that way by the Bush administration after the destruction of the World Trade Centre. Then after war there can be a great release, as peoples enjoy the experience of a well-deserved freedom, while still holding to the camaraderie built up during the struggle. For some time the conditions for successful collective effort are favourable as effort is directed towards repairing the ravages of war, and economic growth is definitely required, readily possible. Each group or subculture may have the possibility of organising itself and running its own affairs as the control structure of war is dismantled, and all profit for a time. At the same time much of the central organisation remains to guide the nation and protect the weak.

That was clearly the situation following the end of the Second World War in 1945. That was a time of rebuilding, of economic expansion, of optimism and growth. Science in New Zealand benefited from the positive, expansive and permissive mood of those times, building on a firm foundation to flourish within the universities and the Department of Scientific and Industrial Research (DSIR), having the freedom to allow the development of new subjects and divisions, such as the Ecology Division and my own work on global models and the limits to growth within Applied Mathematics Division.

Eventually group solidarity died away – in science as within political parties and unions. The welfare state with all that it had brought for the wellbeing of so many was taken for granted by beneficiaries, while being under attack by those who preferred privilege and inequality. The battle for the collective good was not fought with any determination and once again a central oligarchy took control – this time across countries and within an increasingly interconnected global economy.

The control of peoples has reached new heights, applying the methods of brainwashing and conditioning developed during the Second World War and the Cold War to the enforcement of consumerism. University departments teach the methods of salesmanship and business expansion, publicity and advertising to willing scholars, many of whom continue into extremely well-paid employment in the service of the business and financial establishments. This extraordinary conditioning machine has control of vastly expanded media and is allied with military and security forces that continue to flourish in an atmosphere of fear. Initiative is crushed, despite the spin and propaganda calling for innovation for growth, which asks only for the mechanical, technological satisfaction of business demands. The science that understands that such growth is the root cause of the modern malaise is rejected.

This is a recipe for disaster. The heights of capitalism, with a basic dependence on permanent, never-ending growth was once threatened by its own success, as in 1968 and subsequent years

popular movements calling for change grew, as at Woodstock and the Paris Spring. A basic law of social systems is a fight for survival. Just like any social system the prime aim of the industrial-military-financial complex was to remain in existence, to protect, preserve and strengthen their privilege and linkages and to train the next generation in a belief in their system (the 'American way of life' for example). The control of the media and of advancement for scholars in guided university and research organisations has aided the sales pitch. There are rewards for those who perform to specifications, punishment and rejection for those who transgress. Calls for a change of culture in the face of enormous global problems thus go unheeded.

It is hard for people today to realise just how far everyday lives are controlled by the reach of the consumer industry. Advertising and calls to buy are everywhere, across the face of cities, in newspapers, radio and television. The cost is ultimately borne by the consumer yet we are told to be grateful for the businesses for funding sports (motor races to encourage global warming, gambling poky machines that ruin so many lives), arts and, of course, political parties. This includes presentation of the history of the country and of society.

"Who controls the past controls the future, who controls the present controls the past." [Orwell 1949]

This is no specific or limited conspiracy, led by any one small coterie of extraordinarily wealthy people. It is class action; recent decades have seen a phase in the never-ending class war in which the upper class, the oligarchy, has triumphed. As part of the struggle, a number of groups – international organisations such as the World Bank and International Monetary Fund, think tanks and business associations (the Bilderberg Group, the Mont Pelerin Society and others, financed by corporations and wealthy individuals) – bring together decision-makers to develop the required policies for the clients who wield such immense power. That great global collective, the industrial-military-financial complex is no small conspiracy group but a whole linked class, profiting from and preaching the 'benefits' of inequality, drawing to its side all those who profit from that structure or who can be bought. Their subculture is global, and the loyalty of its acolytes is towards that class and not to fellow citizens. Nations are divided by such loyalties.

Everyday experience tells us of the vast diversity of human natures. Some of us are shy and withdrawn while others are extrovert; some seek power and position while others are content with a lifetime of service; some are forceful or violent while others are gentle; some seek riches and economic gain while others are content with a simple and adequate life. Different qualities may be valued in different societies, or among different classes, depending on the particular situation or environment. In some societies the cultured person is revered, while in others fame is given to the brutal war hero or the physically competitive sportsman. Indeed, even democracies often call for strong, dictatorial leadership in times of crisis.

That variability of personal and social attitudes is reflected in approaches to work, the activity that provides an exchange of effort for material goods. While some believe that the goal of human dignity demands that society provide employment opportunities for everyone, others accept or even call for substantial permanent unemployment. Some futures thinkers imagine a time when large numbers of people never work at all, acting only as consuming drones, and certainly the replacement of human labour by modern technology makes such a future increasingly possible. In many ways it is with us today as struggling people are rejected to a life of unemployment. Others prefer to look forward to a future leisure society where all are active, and reject the concept of a non-working drone group. Meanwhile a society has evolved which combines long hours of pressured work alongside mass unemployment.

That pattern fails to appreciate the basic needs of any human being – for all the diversity amongst the human family, there are some basic features which we share. An examination of human needs

suggests that in an ideal society everybody should be given the opportunity to be a part of the social fabric, and to feel wanted. Like so many other species, we are primarily social animals, depending on the human capacity for cooperation for much everyday living and for our collective success in the process of evolution.

We do not function well in isolation, and for most people good health requires “a sense of community responsibility and involvement”. [Newell, 1975, noted in Robinson 1989, page 13] There is considerable similarity amongst lists of human needs (as set down, for example, by Piaget, Maslow, Bruner and Koestler [Robinson 1989, page 12]), with categories of basic needs build on general concepts of physiological (survival) needs and psychological (sociocultural) needs.

A hierarchy of needs developed by Abraham Maslow is particularly useful. [Maslow 1954] He uses the terms Physiological, Safety, Belongingness and Love, Esteem, and Self-Actualization needs to describe the pattern that human motivations generally move through, from satisfaction of basic survival needs to full participation in living – to truly live, achieving to the utmost the human potential. There is a common theme of social contact running through these: Physiological Needs (necessities of life such as food) are satisfied by the surrounding society, Safety includes security of employment, belonging in a family and good health, Belongingness and Love include friendship and Esteem requires respect from others. Even Self-Actualization, with morality and creativity, which is reached once the others have been satisfied, depends to some extent on acceptance by surrounding people. This is seen in the traditional university career structure where academic tenure provided the security required for independent challenging scholarship. Without such security the independent mind cannot flourish, and true science is blocked.

Here is a conflict. We want belonging. Yet we live in a society that refutes that desire for those who dare to question and will not provide a place for many, an economy happy with high unemployment. Meanwhile most people lack the backbone to speak out and overturn this monster; they are content to just belong. The desire to belong then blocks action and provides support for a system that denies true opportunity.

Independence of thought is central to forecasting, to the futures research that grew from the recognition that all was not well with existing society. Most often it is the maverick, the one prepared to question the very basis of the status quo, who provides the best illumination (which can then be put to the test; there is no thought of following the extremist willy-nilly). If a culture is dissonant as circumstances change, a conformist, or a committee of establishment wise men, will always fail.

“The reasonable man adapts himself to the world: the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man.” [Shaw 1903]

A similar point has been made by hero of the right and patron of selfishness Ayn Rand.

“Men have been taught that it is virtue to agree with others. But the creator is the man who disagrees. Men have been taught that it is virtue to swim with the current. But the creator is the man who goes against the current. Men have been taught that it is virtue to stand together. But the creator stands alone.” [Rand 1943, page 713]

A significant difference here is that in Rand’s fiction the strong individual fits the fascist mould, using that creative instinct to dominate and control others, whereas Shaw’s aim was for the general betterment. It is hard for an ordinary person to have, or to build, the self confidence required to stand up and speak as such a challenging and productive “unreasonable man”. Powerful groups extend their influence by arrogance and bullying tactics, by empowering those to whom they award honours (thus proving them with self confidence and with support to speak for that grouping) and by rejecting critics. It is doubly hard to speak out when a person is put down and unemployed, all self-confidence shattered.

Progress is then possible only in a free society where thinking is encouraged, where the time and security needed to follow a new path is provided, and where there is space for that imaginative man. That is why universities had long provided tenure to senior scholars who then are free to question and challenge their peers. This was largely the case in the New Zealand where I grew up, and in the DSIR of the 1970s. At a time of full employment it was possible to provide ordinary people with all reasonable needs for family, home, health and education with security, dignity, respect, self-pride, integrity and a choice of what each of us might want of our lives – and to encourage freedom of thought. It was then possible to point to the growing problems of society without becoming an instant pariah. The security and belongingness of a welfare state was a fitting setting for true science and scholarship, for originality and questioning.

Then came the selfish privatisation of the 1980s, when the growing global awareness was crushed and the call for material growth took an even firmer hold. This has been the fatal flaw of modern developed society. Humankind was no longer spreading into new spaces, towards wide-open horizons and building burgeoning material wealth with apparent infinite resources. It was time to take stock of the new situation where the limits to growth had become so apparent. But that was prevented.

This is a tragedy of truly global scope. In ancient Greek culture, the word ‘tragedy’ referred primarily to tragic drama in which a central character called a tragic protagonist or hero suffered some serious misfortune that was not accidental and therefore meaningless, but significant in that the misfortune was logically connected with the hero’s actions. Tragedy stresses the vulnerability of human beings whose suffering is brought on by a combination of human and divine actions, but is generally undeserved with regard to its harshness. Certainly human society is vulnerable; certainly the current crisis is a consequence of human actions. Whether the forecast collapse is undeserved is more of a matter of debate. The worsening situation was noticed, pointed out, researched and described by an impressive number of scientists and organisations. But the collective global society, and in particular the wealthy and powerful, chose to turn away and to continue on the path to destruction. That has been the fatal flaw.

The requirement of fundamental change was early recognised, so that ‘futures’ thinkers in the 1970s made frequent reference to the need for a change of ‘paradigm’, and scenarios exploring the probable consequences of differing national and international policies were often based on alternative paradigm choices – which appeared, at the time, feasible. The situation is dramatically different now as the actual shift has been towards more growth and greater oligarchical control.

The required culture change is truly fundamental – to stop population growth and to reduce the number of people by an order of magnitude, to move back and allow space for other forms of life, to stop polluting and altering the very atmosphere with greenhouse gases, to reduce consumption and to embrace sufficiency. The problem is of man’s making and the solution is in our collective hands. There is no magical way out.

Religions born of a warlike tribal society, with differing gods at war with one another and threatening destruction to enemies (group father figures, bragging that ‘my dad is bigger than your dad’), or later urban religions with one external god (a universal father figure) promising protection and rewards in an imaginary parallel universe (‘heaven’) are dysfunctional. There is no god waiting in the wings and about to take care of us. We are alone here on the real world – a finite planet of fantastic, diverse natural beauty – having covered the whole surface with colonies and, in doing so destroyed the living space (habitats) of much of life, taking all resources to ourselves and, now, threatening our own very existence. We should acknowledge our power and accept our responsibility.

But economic life is no longer concerned with universal wellbeing, with each person having adequate provisions for a good life. It is all out for growth, and to hell with the consequences. Always the promise is that some time later trickle down will provide for all, but that tomorrow never comes. The developed economic system reached its apogee around 1970 and has gone on through an unstable series of booms and busts with the whole pack of cards wobbling on the edge of collapse.

Consumerism rules. Popular entertainment leads a retreat to a phantasy world of hobbits and monsters where some individual hero saves the day. The old-time religions have expanded, as seen in Biblical fundamentalism in the USA and the Moslem application of brutal sharia law. The failure of short-lived efforts towards a culture shift is overwhelming.

This global society is not the first to face the challenge of a completely new situation. New Zealand Maori faced just such a crisis with the arrival of Europeans just a few hundreds of years ago. For some tens of thousands of years peoples had moved from Taiwan (and from other parts in East Asia) to the many islands of Near Oceania, preserving links and keeping some degree of contact. Then around 3,200 years ago Polynesians moved further away, and out of all contact, to Remote Oceania. [Howe 2003, page 70] For millennia, then, Polynesians, including Maori, were not linked to, and did not have any knowledge of, the immense changes taking place across Eurasia (the 'known world' or the 'civilised world'). Their forefathers had never experienced the Bronze Age, the Iron Age, the birth of civilisation and science, the Age of Enlightenment and so much more. While the majority of peoples had been changing, evolving and developing in fundamental ways, the Polynesians were isolated, wandering the Pacific and adjusting to local conditions with the tools at their disposal

Maori settled New Zealand around 1300, and by around 1600 had wiped out a major food source, that large flightless bird, the moa. At the time that Europeans came, Tasman in 1642, Cook in 1779 and many others thereafter, they were hunter-gatherers preserving an ancient tribal structure, with rudimentary agriculture and gardening, and no large animals, metals or pottery. [Robinson 2012, chapter "Maori at the time of meeting"] They had not shared in the millennia of development of new civilisations, tools, religions and ways of thinking. It was a considerable culture shock to be faced with the far increased capabilities of the newcomers, and to come into contact with, and visit, the developed world.

The arrival of Europeans, with their extended range of new knowledge and capabilities, provided an immense challenge to Maori culture. Much of the reaction was positive as Maori quickly adapted to the new foods and tools, trading and learning the foreign language as well as taking an immediate interest in reading and writing. Unfortunately there was one great fatal flaw in their culture. This was a warlike tribal society much given to attacking other tribes (just like the Old Testament desert tribes), and warrior chiefs soon came to realise that they could conquer and slaughter their foes in great numbers with the use of sufficient numbers of muskets. The consequence was a considerable expansion of intertribal warfare and the killing of around one-third of Maori in 1800-1840 in turmoil that was destroying the Maori society and population. [Robinson 2012]

While some chiefs wanted to fight on, to continue with slaughter and conquest, others realised the great harm being done and came to desire an end to that traditional way of life. Here – so very different from today's isolated planet – there was a *deus ex machina*, a new foreign force (come as if from another planet) offering a new culture with a promise of peace under a unifying government. That opportunity was seized upon by a number of chiefs in the north – where trade with the British and Americans was most advanced, where there was a greater missionary presence. A group of chiefs sent messages to the British Crown asking for intervention, to control British newcomers and protect them against French colonial forces, and from attacks by other Maori. In 1831 "we pray thee to become our friend and the guardian of these islands, lest the teasing of other tribes should

come near to us” [Walker 1990, page 87] and in 1835 a “Declaration of independence” with an entreaty to the British King “that he will continue to be the parent of their infant State, and that he will become its Protector from all attempts upon its independence.” [Robinson 2012, pages 95 and 96]

The attempt to bring together all the tribes in a federation and to organise a national Maori body soon failed in that tribal society, defeated by love for war and the ongoing desire for ‘utu’ or revenge. The solution was the designation of colonial status for the country, with the assertion of British laws. In 1840 the Treaty of Waitangi was signed, bringing British law (and thus an end to tribal killing, cannibalism, slavery and infanticide) with the famous declaration by Lieutenant-Governor Hobson, “Now we are one people”.

This assertion of a central authority to put an end to the power of tribal chiefs to attack and kill others demanded a comprehensive change of Maori culture. That culture change took many decades to work through. Some Maori chiefs wanted to hold to their old ways, and reacted against their loss of position as all Maori became equal before the new law. They were no longer allowed to assert their authority or make war on other tribes. During a long period of culture change there were considerable differences amongst Maori, as some held fast to old ways despite the general acceptance of a national authority as a British colony. In the various tribal rebellions (or New Zealand Wars) of 1840-1872 most tribes fought with British and European settlers against the rebels. Once peace was established, Maori steadily became part of a developed nation.

That quite extraordinary culture change, from millennia-old tribalism to modern civilisation was not without major problems, but had succeeded within the following century, thanks to the considerable efforts of people of all races. But the national consciousness and resultant caring for others has recently been under attack, bringing a general breakdown of national collective spirit. People have been told to worship competition and separation, with the atomisation of the social fabric. The direction was set most famously by British Prime Minister Margaret Thatcher.

“There is no such thing as society. There are individual men and women, and there are families.” [Margaret Thatcher 1987. In *Woman’s Own*, 31 October]

That social breakdown has been evident in New Zealand with the destruction of the ethos of the welfare state. The unity of the nation is further unravelling with the development of an aggressive Maori separatist movement with a promise of gain to a tribal elite from grievance and ever-expanding Treaty claims. This has been accompanied by an extensive rewriting of history. The modern insistence on making judgements on past peoples based on today’s much changed criteria, and then insisting that British actions must be judged accordingly while making patently false claims that Maori society did pass every such test is an “elusive way of writing and using history [with] a historical mentality less concerned to recapture past reality than to embody present aspiration.” [Oliver W H. *The future behind us, the Waitangi Tribunal’s retrospective utopia*. In Sharp and McHugh 2001. Referenced in Robinson 2012.]

The distortion of the story of the past in the service of modern racist politics has included a biased application of today’s concepts to a very different past. That reliance on present beliefs when seeking to understand a bygone era has been called ‘presentism’. The global reliance on an outmoded and inapplicable growth-oriented ideology to current economic and social development may similarly be given a label of ‘pastism’, with beliefs from the past guiding a dramatically new world. Both such narrow approaches are foolish. The Maori and British, and then the New Zealand Government, had to face the extraordinary challenges of their time with the tools available, and did a pretty good job. The peoples of the world cannot face the culture shift demanded of adaptation to the reality of an overcrowded and damaged planet with a continuing reliance on beliefs built up

during the period of expansion and colonisation, or on major religions based on the struggles of long past tribal societies.

The world faces massive problems of overpopulation, potential water and food shortages, resource usage and the end of the age of oil, species extinction, economic collapse and climate change. Will that combination of factors lead to crisis and collapse? This is surely the major scientific – and indeed existential – question of our time. That issue is far more serious and much more important than any in the past. The question is not philosophical or religious – it is one of survival.

The forecast given here is for just such a collapse, a perfect storm, around 2030. The current generation inherits decades of failure, of warnings answered only by denial and a continuing rush to destruction. The picture here is not another warning, asking for action to prevent catastrophe. That is now too late. It is a description of efforts to bring the ‘global problematique’ [the interconnected problems facing the total international community; this is a term introduced by the Club of Rome] to general attention, hoping to provide some understanding of the magnitude of the global failure. The well-established warning continues to be buried beneath the insistence on a selfish outmoded culture of growth in the face of such manifest evidence of the need to take up a culture of sufficiency, with care for the planet and for other people. Yesterday the call was for a sustainable society. That is now no longer possible, and each national community must find how best to survive a disastrous age.

* * * * *

Chapter: Sustainability

Some of us feel a great attachment to this earth on to which we are born. The natural world is a treasure in its own right, not just a resource for the use and plunder of one rapacious species. In the words of poet Gerard Manley Hopkins, although “Generations have trod, have trod, have trod; And all is seared with trade; bleared, smeared with toil; And wears man’s smudge and shares man’s smell; the soil Is bare now, nor can foot feel, being shod”, yet still “for all this, nature is never spent; There lives the dearest freshness deep down things”. [Gerard Manley Hopkins (1844-89), God’s grandeur.]

With this appreciation comes a desire to preserve and respect, to sustain and protect that glory and those marvels – to allow the natural world to recover, to continue and flourish. In short, to sustain the natural world, with all its richness and diversity, for centuries and millennia into the future – for ever as far as we can determine. For its own sake.

That aim is frequently voiced – with great sincerity by some, but as empty spin by the great majority. I wish to take it seriously here. First comes the recognition of the considerable harm done by homo sapiens from the beginning of a long period of expansion and development. It is clear that such awareness, regard and care have always been absent in communities and governments, as is alarmingly evident today.

The great period of human expansion was between 9,000 and 13,000 years ago after the end of the last Ice Age. The consequence was the Holocene extinction, the disappearance of large mammals from many lands. Thus, “at the end of the Pleistocene epoch some 12,000 years ago, roughly two-thirds of the large mammal species in North America went extinct in a short time. Included were several species elephant-like mammoths, a tall relative of the Dromedary, giant ground sloths, and sabre-toothed cats.” The best known is the woolly mammoth of Europe. One deposit of bones and

ashes in Czechoslovakia, investigated around 1880, included “many flint-chipped artifacts of the Aurignacian culture and incredible numbers of bones of aurochs (an extinct progenitor of domestic cattle), Musk Oxen, bison, wild horses, Reindeer and above all, Woolly Mammoths. The bones of mammoths made up about three-quarters of the deposit, and many of them were of young animals.” [Ehrlich and Ehrlich 1981, pages 109 and 111]

In addition to mammals, large marsupials had been wiped out in Australia at an even earlier time (including a large predator, the marsupial lion, which was still alive – and drawn in cave paintings – when aborigines landed on the continent at least 40,000 years ago). Following a summary of available information, Tim Flannery (Research Scientist in mammalogy at the Australian Museum in Sydney) concluded that: “I feel that the weight of evidence is now clearly in favour of a very rapid, human-caused extinction for the Australian megafauna.” [Flannery 1994, page 207]

The pattern of species extinction following human colonisation is everywhere, found in all continents and islands across the world. In a most recent example the many species of a large bird, the moa of New Zealand, disappeared after just 300 years of settlement (around 1300 to 1600, after which the Maori diet changed markedly for the worse [Robinson 2012, pages 23-26, and Houghton 1980]). The examples of Australia and New Zealand where ‘indigenous’ peoples – the first wave of settlers, aborigines and Maori – wiped out species soon after settlement show that there is no ancient wisdom of peoples previously ‘in touch with nature’ from which we must learn. Hunter-gatherers were as careless with the natural world as city-based people are today.

That process, with its milestones of extinction associated with human expansion 40,000 years ago in Australia, 12,000 years ago across the American continents and Eurasia, and just 400 years ago in outlying New Zealand, is really hotting up now. Since those extinctions that are either happening now or possible in the near future are due to human activity, the process has been labelled the “anthropocene extinction”.

“The dominance of human influence on planet Earth has been argued to have initiated a new geological epoch, the Anthropocene. One of the central features of the Anthropocene is a looming extinction event, with extinction rates three orders of magnitude [1,000] above background and on par with the five catastrophic mass extinctions of Earth's history. The IUCN Red List provides the most comprehensive dataset through which to assess this extinction event; all species of mammals, birds, amphibians, and corals have now been assessed. ... The crisis represents an irreversible erosion of natural capital, reduction in option value, and loss of intrinsic value.” [Zalasiewicz et al 2008]

As noted above, many biologists estimate the current annual loss of species at 1,000 times or more greater than historic rates. One scientist estimates the extinction may be 10,000 times the background extinction rate. [Wilson 2002] The Red List prepared by the IUCN (International Union for the Conservation of Nature) estimates endangered (likely to go extinct) species as 19% of amphibians, 9% of mammals and 5% of birds. When vulnerable species are added, the proportion under threat is 29% of amphibians, 20% of mammals and 12% of birds.

If we accept that people must follow the evolutionary path of survival of the fittest and evolution of the successful, with extinctions as a natural part of the picture, then our role is simply to follow the instructions programmed into us for the destruction of everything in our path and on to inevitable overshoot and decline of our own species. Many people do think that way. Human brainpower is believed too be of no avail; we will thrive and cause massive extinctions as our destruction of nature is just following a natural course. No intelligence guides this pattern.

The question is too big to think of. We are a mixed lot. Most want a decent life, just an opportunity to live happily within our own community. Some strive for domination, forcing their way to power

by bullying sharp elbows. How society operates as a whole then depends on who is in control and which is the dominant ethic. The consensus conclusion is to sit back and let it happen.

Others of us disagree. A couple of us formed the Island Bay World Service in March 2008, to publicise the extent of the set of interlocking crises now evident on the world stage and call for adequate action from the public, other environmental groups and government (both local and national). We had decided that we would speak where necessary outside the current conventional wisdom with its emphasis on growth and 'business as usual', since it is well past time that community organisations recognised and reacted to the current very deep world crisis. [The Island Bay World Service manifesto is included here as an appendix.] Part of our activities has been to talk with people at meetings and in the street, and we have found a substantial number accept the destruction of other species, and even the damage to the planet and humanity itself, as simply the natural order of things. In this view homo sapiens is simply playing its evolutionary role as a global game-changer, acting in accord with scientific principles, just like any other organism such as a plague, a virus, or rabbits in the absence of adequate predators – that is the way it is. There is no thought here that another evolutionary aspect of humans – conscious reasoning – should be applied to consider just where we are at, and to suggest a way to behave, given that we share such an extreme responsibility over life and death of other species.

The reasonable man just wants to be left alone and is content to go with the flow, accepting that just as many species have gone extinct so will we, taking many others with us, as this is a law of nature. The unreasonable man points out that we know all that, we are dominant and in control, we know what is happening and could change direction in a global paradigm shift. That is too bothersome to the reasonable man (who just wants to fit in and be accepted within the mainstream), as also to the selfish rational man so beloved of economists (that guiding personality who wants more, now, and to the devil with any doubts or concerns or signs of impending doom). The few of us in the Island Bay World Service have been unreasonable and have been treated accordingly, ignored. It takes a thick skin and a wicked sense of humour to persist.

We are considered to be particularly extreme when we suggest some concern for the preservation of a vanishing natural world. This would mean sharing the earth, giving back habitats and allowing adequate space for the full range of complex ecologies in a complete, undamaged ecosystem, using only what can be sustained. This would require us to keep out of the lion's hunting ground, leave the elephant to roam widely, expand lowland forests across the New Zealand landscape, stop taking from the seas until numbers of fish can recover from overfishing, and much more.

This has never happened before and such a desire for sharing, and allowing space for others to flourish, would require a truly fundamental paradigm shift and change of culture, together with an entirely new human humility. That has never been the human way. It took just hundreds of thousands or a few millions of people to wipe out many species all those thousands of years ago, before people had developed their modern capabilities and demands. What is the human carrying capacity of the planet if those conditions were applied? Certainly far fewer than now exist – a reduction by two orders of magnitude (from 7,000,000,000 to 70,000,000) might do it. That first concept of sustainability is an impossible dream.

The spread of humanity across the globe and the development of new technologies and ways of life, which has damaged ecosystems, has not been all smooth sailing for the participants. Many civilisations have flourished for a while before crashing. Some examples have been noted in the "Culture change" chapter.

The many well-known failures of the past provide a warning of the consequences of disregard for environmental limits, and suggest the wisdom of an adequate safety margin. Such wise caution and caring would provide greater security for the human population, which could continue at a

sustainable level, allowing for potential problems with climate, resource limits and imperfect governance. Even without any regard for other species and natural ecosystems, there is a limit to the carrying capacity of the earth. One estimate of the ecological footprint – the average amount of productive land and shallow sea made use of for food, housing, transportation, commerce and waste absorption – is around one hectare in developing countries and 9.6 hectares in the USA. This estimate has been used to suggest that it would require four more planets to bring everyone up to American level of consumption. [Wilson 2002, page 23] A number of other estimates provide similar conclusions, that perhaps 1.5 to 2.5 billion people could be supported with a fully ‘developed’ lifestyle. This is around one quarter to one fifth of the current population, which continues to rise. This second concept of sustainability, of holding on to and spreading a high material standard of life, is, like the first of sharing with other species, impossible without an extraordinary effort over a very long time. It is not on the agenda.

If not the survival of a wondrous natural world, or the provision of a high standard of living to everyone, just what are we talking about? It is the possible collapse of human numbers as the extreme limits for packing people in are reached, and passed. This is a truly absurd question and an obscene goal, yet it is the future facing us now.

Many global problems – such as species extinction, habitat destruction, water and land shortages, the end of the oil era, greenhouse gas emissions and global warming, together with a desire to provide a better life to the many poor – have become all too obvious. A looming global crisis has been noticed by a number of people, even if ignored by the great majority. Yet peoples are, for the most part, either unable to accept the magnitude of the challenge and the changes required or forced into compromise.

The required reduction in human numbers and activities will never be countenanced. Talk of ‘sustainability’ is just spin; this is a catch phrase introduced into the debate to pretend a concern while continuing much as before, a buzzword. I was introduced to the use of buzzwords by colleagues in international organisations, UNESCO (the United Nations Educational, Scientific and Cultural Organisation) and OECD (the Organisation of Economic Cooperation and Development, bringing together economic thinking from the wealthy, ‘developed’ nations), when I was in Paris. Each major issue would come, dominate for a while, and then vanish to be replaced by another. For a year or so every document tut-tutted about youth unemployment before it disappeared. Another year (1981) all the talk was of ‘interdisciplinarity’. Since that is my area of expertise, I obtained a contract to write a report (internal and unpublished) on “Interdisciplinary and intersectoral analyses” for the UNESCO Bureau of Studies and Planning. It was clear that a previous consultant had covered the topic well, and that I should build on that work to develop a framework for action. However, the idea of actually doing something was so shocking that I was quickly paid off and did not continue the work. The chatter surrounding calls for sustainability certainly brings back memories of past buzzwords and attendant inactivity.

Any action towards realistic sustainability of the earth as we know it, even in its present damaged form, requires a considerable paradigm shift, and change of cultures, with far fewer people, who are guided by a newly appropriate set of philosophies and religions, way of life and set of goals. In the meantime the distortion of the very concept of sustainability instead provides support for the destructive growth ethic, supporting continuation of the status quo rather than any significant change.

The phrase ‘sustainable development’ was introduced into the international vocabulary in the 1980 World Conservation Strategy published by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF). The World Conservation Strategy emphasised the interdependence of conservation and development, and defined development as “the modification of the biosphere and the application of

human, financial, living and non-living resources to satisfy human needs and improve the quality of human life". The section "Towards Sustainable Development" identified the main agents of habitat destruction as poverty, population pressure, social inequity and the terms of trade. It called for a new International Development Strategy with the aims of redressing inequities, achieving a more dynamic and stable world economy, stimulating accelerating economic growth and countering the worst impacts of poverty.

That worthy-sounding document has a conflict right at its very core. The lack of a policy to reduce population together with a call for accelerated economic growth are in opposition to environmental protection. Thus one more oxymoron was introduced into the debate, joining others such as 'organic', 'eco' or 'green' descriptions of 'growth' or 'development', all making a pretence that relabelling was all that was needed. Yet even such fine scholars as Paul and Anne Ehrlich relied largely on the IUCN World Conservation Strategy when they presented "a utopian view" of the future. [Ehrlich and Ehrlich 1981, page 249]

None of these international agencies wanted to step outside the current development paradigm. The talk of sustainability continues to be associated with a call for universal material wealth and an end to poverty, aiming at a western lifestyle for everyone. Somewhere along the way, the physical reality has been forgotten. The point is readily evident, and pointed out by those who see clearly that, here, the emperor has no clothes, as in this comment on the 2012 Rio Earth Summit.

"I'd like to suggest that the treaty chaos might have a lot to do with the two key words themselves, 'sustainable' and 'development', because it's becoming blindingly obvious – so much so that nobody wants to look at it – that the two concepts are fundamentally irreconcilable.

'Sustainable' is supposed to mean we shouldn't do anything unless our natural environment can sustain it without depriving future generations. But what does 'development' mean and imply? It refers back to what used to be called 'under-developed' countries, which for PC reasons turned into 'developing' countries. Now we have 'emerging' countries – emerging presumably from under-development and into development. Which in fact means that their economies are growing, and therefore using up more natural resources, although no-one has yet figured out how that growth, plus growth in so-called developed countries, can happen 'sustainably' (let alone without fighting about it).

As long as we keep talking about 'sustainable development' instead of 'sustainability', it can never be anything but talk." [Ilona Bossanyi (St Sados, France) 2012. Letter to the Editor, The Guardian Weekly, 22 June.]

The Rio Declaration discards the basic principles of environmental action. In the 2012 Rio Earth Summit text, "sustainable growth" crops up 16 times in the document, where it is used interchangeably with sustainability and sustainable development. But if sustainability means anything, it is surely the opposite of sustained growth. Sustained growth on a finite planet is the very essence of unsustainability. [George Monbiot, published on the Guardian's website, 22nd June 2012]

The very title of the 2012 UN Conference on Sustainable Development says it all, for there is that conflict, that oxymoron, bannered as a keynote of the whole exercise. Many speakers made their unconcern for the environment clear with calls for support to the business enterprises that are the cutting edge of the destructive human juggernaut. USA Secretary of State Hilary Clinton spoke of forging partnerships that would harness "the power of the market." Others insisted on the preservation of outdated and damaging religious concepts. There was an absence of any recognition of the need to control and reduce population; the Vatican (a very powerful NGO) prevailed by striking out the phrase that leaders should recognise "access to reproductive health services". ["Environment summit ends in disappointment", The Dominion Post, June 25 2012]

That action stands in stark contrast with hopes that those understanding the global predicament can join forces with the religious establishment. Edward Wilson expressed that hope, with a belief that: “For the Abrahamic religions, Judaism, Christianity and Islam, the environmental ethic is compatible with belief in the holiness of the earth and the perception of nature as God’s handiwork.” [Wilson 2002, page 157] That hope is not proving itself in current debate. Instead, major problems arise when religious authority insists on the application of ancient superstitions based on long-gone tribal societies to a real-world situation, and when national leaders insist on strengthening forces that are fundamental to environmental desecration.

These are multifaceted religions, and any environmental concern or delight (as expressed above by G M Hopkins) is a minority concern. For most believers, and for the leadership, the earth is there simply to be used. The focus of debate is elsewhere, more on matters of dogma than on concrete reality. Those religions are part of a paradigm of growth taking the world as tool for human use, without any separate value given to other species or the environment, with a belief in a separate world or heaven that is of greater importance than this earth, and with dependency on an overseeing god. Such religions are, in the mass, part of the problem, despite some people within churches having great concern for the stewardship of nature. They would need to reinvent themselves in order to become part of a solution by taking part in the invention of a new paradigm.

Even though sustainability and development are in fundamental opposition, many lay claim to desire both. Arthur Koestler called it the Dual Mind: the ability of the religious to protect their faith by keeping their beliefs separate in their thoughts from the facts and practical knowledge that contradict all of them. [Koestler 1967] The process is similar to the Orwellian ‘doublethink’, the power of holding two contradictory beliefs in one’s mind simultaneously, and accepting both of them. [Orwell 1949] This is a common feature of human thinking, as individuals try to make some sense of the world into which they have been born. It is of particular importance here, as even those who have apparently realised the existence of limits to growth on an intellectual level have soon retreated to the familiar, comfortable old pattern with talk of ‘organic growth’, ‘green growth’, ‘sustainable growth’, ‘sustainable development’ and the like – always holding on to the creed of expansion.

The failure to fully recognize the consequence of a logical argument – and to draw the evident conclusion – is a frequent weakness of otherwise clear thinkers. All too often a robust and challenging presentation will conclude with a clearly inadequate idea of how to react or with an unfounded expression of hope, as the author feels more comfortable drawing back from the brink to familiar territory than completing the full picture to point to a need for radical change and revolution – and thus to risk a challenge to the interests of sponsors or colleagues, or even to one’s own deeply held beliefs.

One typical example is David Attenborough’s BBC presentation *How Many People Can Live On Planet Earth?* This is excellent, until Attenborough loses his nerve towards the end and concludes with a call to empower women – and nothing more. That may be a worthy aim, but it fails miserably to point to the massive overpopulation and the problems arising, as he had shown. He is also dismissive of the Chinese one-child policy even though it has reduced their population increase by perhaps 400,000,000. It is going to take some very strong action to handle the storm and to control a global population running way out of control, and we must not dismiss practical options so lightly.

Another common habit is to devise vacuous diagrams to create an image or chart hinting at deep thought while having no real meaning. Here an example is provided by Edward Wilson who draws a triangular chart of private sector, government, and science and technology – and that the interlocking of the three key agents is vital to global conservation. Then optimism takes over as he suggests that the trends in the evolution of these ‘agents’ are encouraging. He is particularly

hopeful concerning the “swift ascendancy” of the NGOs, the “spearhead of the global conservation movement”. [Wilson 2002, page 165] One NGO, the Vatican, has been noted above, as has the confusion over ‘sustainable development’ by the IUCN.

There is here an image of Non Government Organisations as basically community organisations, free from the bureaucracy and central control of government and run by members. But this is not generally so. Rather than democratic involvement, a NGO is most often run by a small coterie from a head office, who are guided by their own beliefs and interests. It can then be difficult for a member to raise any point that might challenge the current administration. My own efforts to bring the global crisis to the attention of several NGOs (the Green Party, Forest and Bird, the Development Centre and ECO) each ended in complete failure, not getting past the first stage of suggesting a dialogue and consideration of evidence, which was refused. All, along with fellow groups including 350 and Transition Towns, were determined not to stray from their comfortable space, or to allow any challenge to their narrowly defined worldview. To place hopes with NGOs as they are today is wishful, romantic and a waste of time.

Two of these experiences show how the head office of a community organisation will protect the status quo and their own position by blocking challenging ideas.

In 2008, when I was on the Wellington branch committee of Forest and Bird, I found a divergence of opinion (around 50-50) between those who felt that the organisation should stick to its core business and others who felt that every environmental group should pay attention to the global predicament. A couple of us decided that it would be a good idea to ask Forest and Bird to adopt The Earth Charter, as a step in the right direction and to open up the wider debate.

The Earth Charter had a long genesis. In 1987 the World Commission on Environment and Development (known as ‘the Brundtland Commission’) called for “a universal declaration” and “new charter” to set “new norms” to guide the transition to sustainable development. A draft UN Earth Charter was developed for the Earth Summit in Rio de Janeiro in 1992, but the time for such a declaration was not right. In 1994, Maurice Strong (Secretary-General of the Rio Summit) and Mikhail Gorbachev, working through their organizations (Earth Council and Green Cross International respectively), restarted the Earth Charter as a civil society initiative, with initial facilitation and support from the government of the Netherlands. Strong and Gorbachev convened a formal, high-level, and independent Earth Charter Commission in 1997, which worked to oversee the final development of the text and to come to agreement on a global consensus document. After numerous drafts and after considering the written input of over 5,000 people, the Earth Charter Commission came to consensus on the Earth Charter in March 2000, at a meeting held at UNESCO headquarters in Paris. The Earth Charter was formally launched later that year, in ceremonies at The Peace Palace in The Hague, Netherlands.

The result is a widely recognized, global consensus statement on ethics and values for a sustainable future. The Earth Charter has been formally endorsed by over 2,500 organizations, including global institutions such as UNESCO and the World Conservation Union (IUCN).

The Earth Charter contains a clear expression of concern in a preamble (given here), a set of 16 principles and an indication of “the way forward”.

“We stand at a critical moment in Earth’s history, a time when humanity must choose its future. As the world becomes increasingly interdependent and fragile, the future at once holds great peril and great promise. To move forward we must recognize that in the midst of a magnificent diversity of cultures and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace. Towards this end, it is imperative

that we, the peoples of Earth, declare our responsibility to one another, to the greater community of life, and to future generations.” [Preamble of The Earth Charter]

This is a far from robust charter, as it fails to emphasise the extent and immediacy of the problem, or the considerable action required as a suitable response. But as a wake-up call it is excellent, and it provides a readily accessible basis for agreement, perhaps more suitable than a blunt statement of the crisis to people who have yet to be fully convinced.

However, the suggestion that Forest and Bird adopt the charter was resisted by officials at every level. The Wellington committee decided it had to go before the branch AGM. There it was decided that I (not the branch) should take it to the national AGM. I wrote to the president and others that I would move adoption at the AGM, and did so. As before, I found that many members supported my initiative. It was decided that everyone needed to study the charter before considering it further, and that I should send a note to all branches. However, that note was rewritten without my permission at head office before it was circulated, so that the issues became blurred and unclear. Along the way I repeatedly asked what the rules were and whether a branch could adopt the charter, but never received any clarification. The rights of members were never clear and the initiative was repeatedly kicked to touch. I finally stopped wasting my time and resigned as soon as a Green Wellington project was completed.

Our group, the Island Bay World Service, had a similar experience with ECO (Environment and Conservation Organisations of New Zealand), which we joined in 2010 in order to make contact with likeminded groups and exchange information on the global setting for their various activities. Although ECO promised “up to date contact details allowing access to other ECO organizations”, there was no email tree available, no contact with anyone apart from ECO head office, and no regular exchange. When we raised this point, noting that “The ECO membership details document refers to up to date contact details allowing access to other ECO organizations”, and asking “Could we please have that information?” there was no response. So we sent a motion to the ECO conference. This was not accepted. We had thought that the idea of joining ECO was to form a network and get to work together but other member organizations did not want to be bothered with any such conversation. However, a motion was passed “that Island Bay World Service inform ECO member bodies of its Rugby World Cup, don’t come campaign”. So I submitted an article to the magazine, ECOLink. Back came a severely rewritten and gutted version. Since we had set up a group to speak clearly, not to be censored at every step of the way and to be forced into political correctness, we quit ECO and stopped wasting our time.

Those stories are only two of many, and are typical of today’s environmental movement. The focus of those in positions of control and leadership is increasingly conservative and supportive of the status quo, keeping to a safe and restricted range of topics and speakers at their events. In 2012, speakers at the Forest and Bird Annual Conference hammered the theme of growth and support for business together with a call to reject outspoken champions for the environment. [Dominion Post, Monday June 18 2012] Under a heading “Green extreme should be replaced”, wealthy economist Gareth Morgan said that New Zealanders were preoccupied with jobs and families, and conservation and the environment were only “occasional visitors into that space”, before he railed against “tree huggers”. Those whom he criticised have been the mainstay of Forest and Bird, willing to stand up for what they believe in. He further advised that political parties championing conservation must be willing to form coalitions, since “otherwise they’re rightly seen as just lefty loonies”. Thus he asked of the Green Party, “Does it still cling to the anachronism that economic growth is not compatible with conservation?” As a member of Forest and Bird I had raised just that point, and been forced out. Now the leadership took the further step of inviting a spokesman for growth as a lead speaker.

Others continued the theme. Green MP Eugenie Sage felt that enhancing the environment was a huge opportunity to improve New Zealand's economic competitiveness and create jobs and green growth. Forest and Bird president Andrew Cutler emphasised that position. "The stereotype that we always oppose developments and industry is out of date and just plain wrong. We recognise that working with industry and business is part of the answer to our conservation crisis."

The theme of growth above all else is common among the business community, clearly expressed by the 2012 Federated Farmers president, Bruce Wills, when warning New Zealand against going too far with its pursuit of a clean green image. "Of course we want a clean and beautiful country and of course farmers have to pull up their socks. But we mustn't forget about growth." [Dominion Post, Thursday June 28 2012]

These are calls for 'motherhood and apple pie', a wish for everything without making a choice between incompatible goals. Here is a desire to gorge and never become sick or obese, to drink wine and spirits with never a hangover. Such wish lists ask for everything without any recognition that it is just not possible. A choice must be made.

Any well-informed alternative thinker is an outcast from such discourse, as are those who are prepared to take strong non-violent action ('tree-huggers' and the like). A sincere concern for a sustainable environment is found unacceptable. There is no reference to the mass of worrying science, no appreciation of the full scale of what is happening.

That global science has been crushed. Calls for the very growth that has been shown to central to the modern predicament come thick and fast, and a reliance on technical optimism has become ever more explicit. 'Innovation' is expected to solve all problems. That semi-mystical belief is shown in the change of government scientific activity, as the previous Department of Scientific and Industrial Research (DSIR) became The Ministry of Science and Innovation (MSI), which has been replaced in its turn by a 'super ministry' merging economic development, science and trade and enterprise – The Ministry of Business, Innovation and Employment (Mbie). Any reference to science has gone from the title, and independent research has disappeared completely, replaced by a controlled system demanding 'innovation' for growth at the service of business, a step that shows a complete lack of comprehension of the working of science and no respect for or understanding of the human spirit. What one-dimensional cardboard cut-outs we are required to be! Meanwhile the silence from the acquiescent scientific establishment is deafening.

The contradiction at the heart of the current discourse is even more obvious in 'green' business organisations such as Pure Advantage. The aim is simply to increase particular business ventures and to join in harmless displacement activities. All operate within, and accept the current conventional wisdom, within the growth paradigm. All are busy papering over the cracks and none have shown any readiness to face the gravity of the situation. Similarly those few think-tanks that are funded by those with sufficient wealth, such as Sustainable Future, simply fuss around the fringes, fudging fundamental issues and raising endless confusing complications while providing support for the status quo. Examples of the appropriation of slogans to support business abound. Here in Wellington there are green taxis, claims for an eco-city and a carbon neutral airport, all vacuous. Such feel-good spin acts as a cover for inaction.

As well as those who say they want sustainability (even though their goals and actions are woefully inadequate), there are also a large number of people who dismiss any such concern completely. Many imagine a conspiracy for global control. The various discussions and international agreements expressing some environmental concern are thought to be part of "a United Nations political agenda that is designed to control resources and people, ... an expansion of global governance controls on New Zealanders that will further undermine our culture and private property rights that have traditionally underpinned our economic growth and our identity in the world."

According to this view, such United Nations debate “is based on the notion that humans are destroying the planet and as a result, every aspect of our lives needs to be controlled.” It is claimed that the UN Agenda 21 (a non-binding, voluntarily implemented action plan for sustainable development produced at the 1992 UN Conference on Environment and Development), “is a system of global control – the UN’s plan for a centrally managed global society, where governments around the world implement laws that control the way we live, where we live, and how we live ... all under the noble banner of saving an endangered planet. If fully implemented, Agenda 21 would have governments involved in almost every aspect of human life on earth.” [These notes from the New Zealand Centre for Political Research weekly newsletter, 27 June 2012, are typical of such comment.] They need have no such fear; it is all just talk.

In fact any collective action based on the recognition of a unique existential situation as a finite earth has been overrun by one species (ourselves) is refused as a challenge to freedom. That claim is parallel with an insistence on permanent growth, since growth is a necessary condition for capitalism and, in this view, capitalism and property rights are fundamental to a particular concept of freedom. Obviously if each individual is to have the right to act however they might wish, community support for both social wellbeing and environmental protection are forbidden. That conflict between individual freedom (even that illusionary freedom which is permitted by a controlling oligarchy) and the central control necessary to deal with national and international problems runs throughout the debate on global issues.

The growth mentality and the paradigm of growthmania are firmly in control. The considerable political changes of the past decades have destroyed the ethos of the welfare state, as social solidarity has been replaced by selfishness, equality by inequality. The global concerns that occupied much attention in the 1970s have all but disappeared.

This drift has been a great success for those with wealth and privilege in their fight against equality, community and environmental needs, to assert dominance. That powerful growth paradigm and worldview has considerable support; those who benefit fight hard to protect their position and profits. The shared beliefs of the dominant class, together with the associated power system (political, religious and commercial) determine the prescriptions for the working of society. This complex web of interactions and control mechanisms provides the basic structure for daily life. The world into which we have been born has taken millennia to develop and will not change readily – too many have a stake in the status quo. There are then massive barriers to overcome before change becomes possible – and already it is too late.

Despite the widespread denial, the recognition that something is seriously wrong, and is being ignored, occasionally crops up in fiction. Many thoughtful people can see that something is going desperately wrong, and realize that a powerful ruling class is determined to hold on to old ways. This is from a mystery novel about a Singapore detective in India.

“Farmers had been committing suicide in large numbers as their crops failed because of a severe drought in the northern states. Global warming was to blame according to scientists and the government had promised tough climate goals. Next to the article was another one, lauding the Tata Nano, the ‘one lakh’ car. No one seemed inclined to point out the contradiction between reducing global warming and sticking a bunch of cheap cars on the road. Humanity was doomed, decided Singh ...” [Flint 2012, page 41]

The peoples of the world are now faced with a situation of unparalleled magnitude. The challenge is existential – how to bring about the culture change, the paradigm shift, required in order to adapt to the complete colonisation of the whole planet – how to protect and nurture all of nature, how to reduce human activity while providing for the basic needs of an overlarge population. We live in a truly extraordinary time. This is the old Chinese curse, ‘may you live in interesting times’, which

expresses a hope that a hated person will live through war, pestilence and social breakdown rather than at a time of peace and general prosperity.

Over the many millennia of societal development many civilisations and peoples have come face to face with an existential challenge, from a damaged environment or from the coming of a new people with very different ways. The recent example of the coming of Europeans to New Zealand and the complete transformation of Maori society with its attendant problems and disruptions (summarised above) has pointed to the immense difficulties involved in a significant change of culture, and the several generations involved in the transformation.

The situation today has one great difference. Maori had the British to call on. Now we have no one but ourselves – there will be no magical *deus ex machina* or interplanetary rescue mission. There is no external authority ready to come to our aid – we are alone, one species on a planet spinning through space, responsible for our own fate. Our inaction will soon result in global breakdown and carnage, with the loss of billions of lives.

It is important to recognise this essential point, the major issue for today's society, the key scientific question that is so obstinately ignored. It is not whether the natural world may be sustained in competition with the human numbers. That has never been the case during the tens of thousands of years of expansion of mankind, and would require a population reduction to perhaps one hundredth of current numbers. It is not whether all societies can become 'developed' to reach American or European material standards. That is not physically feasible and would require a population reduction to around one quarter of present numbers. Achievement of either of those two concepts of sustainability is not realistic. The question before us is harsher than either of these. It is one of survival. How many people can be jammed into the earth before the system is unable to cope, and collapses?

A 1999 estimate from the UN Department of Economic and Social Affairs suggested that if fertility continued to fall (as had been assumed, correctly, in *The limits to growth* in 1972) the world population would be 10.7 billion in 2050, approaching a peak value. The number may be compared with 1 billion in 1800, 3 billion in 1945, 6 billion in 2000 – a jump of an order of magnitude in 250 years, with most of the growth more recently as the world population has tripled in one 80-year lifetime. The forecast is for a 2050 world population more than four times greater than the 2.5 billion when I was born in 1940. Limits to that expansion have been evident since before 1970, and the strain is becoming clear. When will an absolute limit be reached?

An associated question concerns how many other species we might take with us, but that is largely ignored in the overwhelming concern for mankind alone.

It is important to grasp that concept. *The limits to growth* dealt with the absolute maximum human population that could be supported on this earth before collapse. Much of the modelling suggests that the limit is almost upon us, perhaps around 2030, less than twenty years from 2013. The debate is no longer about a good life for all or for a sustainable existence for the natural world. It concerns the survival of humanity alone.

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Chapter: The passing years

Is that forecast realistic? It is late in the day. When the question was posed in 1972, there was perhaps sixty years to react and take a different path. The very idea of a paradigm shift, which was

much discussed in those years, is now lacking. Peoples are determined to continue along the same old path. Indeed the 'one percent', the oligarchy of a global corporate fascism, with their insistence of growth for profit, are more firmly in control than ever. The evidence suggests that a storm is coming, but there is no remedial action. Instead the action taken has been to shoot the messenger and reject the forecaster.

Concern with the direction of 'development', particularly within the industrial revolution, has often been voiced in the past. There have been many warnings of the maldistribution of power. It was back in 1961, more than 50 years ago, that American President Dwight Eisenhower made his famous warning of the growth of the military-industrial complex.

"The potential for the disastrous rise of misplaced power exists and will persist. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defence with our peaceful methods and goals, so that security and liberty may prosper together." [Eisenhower 1961]

The USA was moving away, and has moved so much further away, from the hopes of President Franklin D Roosevelt who in 1941, on the brink of war, wished for "a worldwide reduction of armaments to such a point and in such a thorough manner that no nation will be in a position to commit an act of physical aggression against any neighbour – anywhere in the world." Today's reality is the very opposite. The USA is now responsible for 44% of the \$1.5 trillion world expenditure on arms and ignores international law by committing war crimes as their unmanned drones kill in foreign countries.

Meanwhile warnings of coming crises have been backed with considerable scientific knowledge as the trends continue. Thus, the Arctic has become ice-free in summer, with the melting of ice on Greenland heading towards a tipping point that could raise the sea level worldwide by as much as twenty metres [Jason Box 2012. Greenland ice sheet reflectivity at record low, particularly at high elevations. Ice and climate web log, <http://www.meltfactor.org/blog/?p=476>], while the 2012 Rio Earth Summit has ended in failure. There has been no real action; there will be no real action. Meanwhile the oligarchy has expanded to become the military-industrial-financial complex.

A number of further milestones mark the growing awareness and concern. The year 2012 marked 60 years since Pogo first voiced the recognition that "I have met the enemy and he is us." It was 50 years since the publication of *Silent spring*. It was 40 years since the publication of *The limits to growth*. These are just a few of the many warnings; further publications have provided an extended description of many facets of the increasing environmental and social stresses.

Much of the following builds from *The limits to growth* of 1972, which also marks the beginning of my own career in interdisciplinary global research. This report to the Club of Rome stated the new situation very clearly. That, the best model then available, suggested that within one further lifetime the whole human enterprise would most probably overshoot global limits and crash.

When that highly publicised report appeared I saw this as the most important question of the age. Did this model hold the key to the next sixty or one hundred years? I believed that such a horrific possibility should not be ignored. I decided to change my career path and focus on gathering as much knowledge as I could.

I might add that what I call here this 'horrific possibility' was in fact ignored by most who considered the report. There was hardly a stampede within science to take up the topic; many thought it was just too big a problem to deal with. I thought it was too big a question to ignore. Like the fabled 'elephant in the room', it deserved attention.

I still believe that. One major change since 1972 is that any idea of a career as a scientist dealing with the 'global problematique' has vanished. Now as I write, looking back on a failed career and

those years of triumphant denial, I find myself totally bemused by it all. How could this have been possible?

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Chapter: The Club of Rome and *The limits to growth*

All people inhabit a community, places where they meet, talk and share common experiences and ideas with others in their tribe, within the society where they belong. This is as true on the international stage as in any small village. Any such society may be either open to new ideas or fearful of challenge or competition. Once, and never more so than in 1968, the response to a growing awareness that all was not well resulted in increased questioning, a desire to face problems and to do better. That openness was found among international public servants and businessmen as well as among the students of Paris and the celebrants of Woodstock in the USA. There was a hopeful feeling that “the times they are a-changin’”. [Title of a 1964 Bob Dylan song. Unfortunately the hope was misplaced; the ways were not changing for the better.]

One opportunity to open up the debate appeared in 1967, when USA Secretary of Defence Robert McNamara was to address a meeting in South America. Since the war in Vietnam, which he had played a large role in escalating, was unpopular, an alternative speaker was required. One of the organisers knew of Italian industrialist Aurelio Peccei who had written of the manner in which many problems of civilisation had become global in scope and no longer restricted to isolated sites. This seemed an interesting topic, so Peccei was invited to step in to fill the gap.

Many other well-travelled international figures had made similar observations of the increasing frequency of growing social and environmental problems across all parts of the world, and had come to the same realisation that problems were becoming global in scope. Shortly after that meeting, one member of the audience, USSR academician Djerman Gvishiani (son-in-law of Prime Minister Alexie Kosygin) was on a flight across the Atlantic, sitting next to Alexander King, head of the Scientific Affairs Directorate of the OECD in Paris. When told of the talk, King immediately recognised the importance of what Peccei had said, and contacted him. Their first effort to set up a group to investigate and publicise the global problematique failed, but a second attempt later that year in Rome succeeded.

Those notes are based on my recollection of an interview with Alexander King in his Paris apartment, years ago. A similar and more accurate account is found in *The History of the Club of Rome*, the first thirty years. [Available on line at http://www.bibliotecapleyades.net/sociopolitica/esp_sociopol_clubrome2.htm and at <http://www.mega.nu/ampp/cor.html>]

“A novelist would probably reject the contacts and encounters that led up to the creation of the Club of Rome as too improbable for a good story. An Italian industrialist who has spent much of his working life in China and Latin America meets, via a Russian (although this is at the height of the Cold War), a top international scientific civil servant, Scots by birth and now living in Paris. They find they share similar concerns, become friends, decide to draw others (American, Austrian, British, Danish, French) into their discussions. Unfortunately, the first proper meeting of this group, in Rome in Spring 1968, is a total flop but a handful of die-hards carry on, and within a few years millions of people all round the world are talking about their ideas.

However unlikely, that is roughly the way the Club of Rome began. It could so easily never have happened – because the protagonists might never have met, or they might well have given up after the failure of that first meeting. That the Club was in fact founded and flourished undoubtedly owed much to the personalities and experience of the two main characters in the story. Aurelio Peccei, the Italian, and Alexander King, the Scot, both had excellent – though very different – vantage points in the mid 1960s to observe the problems emerging in the world; both were worried by what they saw but their capacity to act on their knowledge was limited by their positions. Naturally, they were on the lookout for like-minded people and for ways of taking their ideas further.

Peccei's speech caught the attention of Dean Rusk, then American Secretary of State, and he had it translated into English and distributed at various meetings in Washington. A Soviet representative at the annual meeting of ACAST (the UN Advisory Committee on Science and Technology), Jermen Gvishiani, read the speech and was so taken by it that he decided he should invite the author to come for private discussions, outside Moscow. Gvishiani therefore asked an American colleague on ACAST, Carroll Wilson, about Peccei. Wilson did not know Peccei, but he and Gvishiani both knew Alexander King, by then head of the Scientific Affairs directorate of the OECD in Paris, so Wilson appealed to him for information.

As it happened, King did not know Peccei, but he was equally impressed by the ADELA paper and tracked down its author via the Italian Embassy in Paris. King wrote to Peccei, passing on Gvishiani's address and wish to invite him to the Soviet Union, but also congratulating him on his paper and suggesting that they might meet some time as they obviously shared similar concerns.

While Aurelio Peccei had been working as an industrial manager in the Third World, Alexander King had been pursuing his career as a national and international civil servant in the very different setting of the industrialized countries. He had studied chemistry at the universities of London and Munich, then taught and carried out some important research at Imperial College, London. The war took him to the United States, where he was scientific attaché at the British Embassy in Washington until 1947, concerned with 'everything from penicillin to the bomb'. His experience there and in his next jobs – with the Department of Scientific and Industrial Research in London and then the European Productivity Agency in Paris – gave him the interest in the interactions between science, industry and society as well as the expertise in science policy matters that he was to need in his work at the OECD.

King has described the OECD in the 1960s as 'a kind of temple of growth for industrialized countries – growth for growth's sake was what mattered'. This veneration of growth, with little concern for the long-term consequences, worried King and Torkil Kristensen, the Secretary General of the OECD. They both felt that there ought to be some sort of independent body which could ask awkward questions and try to encourage governments to look further ahead than they normally did. As international civil servants, however, they felt limited in what they could do – at which point, Peccei telephoned King and they arranged to have lunch.

The two men got on extremely well from the very outset. They met several times in the latter part of 1967/early 1968, and then decided that they had to do something constructive to encourage longer-range thinking among Western European governments. Peccei accordingly persuaded the Agnelli Foundation to fund a two-day brainstorming meeting of about 30 European economists and scientists at the Accademia dei Lincei in Rome in April 1968.

To launch the discussion, King asked one of his colleagues from the OECD, Erich Jantsch, to present a paper. Unfortunately for the success of the meeting, Jantsch produced a brilliant but far too sophisticated paper on economic and technological forecasting which bewildered rather than stimulated the audience. In addition, the Vietnam war had made people very anti-American and therefore hostile to what were perceived as American techniques, such as systems analysis. The

debate degenerated into arguments about semantics, many of the participants were either skeptical about the methodology or simply unwilling to become involved in a shaky joint enterprise, and the meeting ended in fiasco.

Half a dozen recalcitrants, however, refused to admit defeat. Peccei, King, Jantsch, Hugo Thiemann, Jean Saint-Geours and Max Kohnstamm had dinner together that night to discuss what had gone wrong and what to do next. King and Peccei agreed at once that they had been 'too foolish, naive and impatient' and that they simply did not know enough about the subject they were tackling. The group therefore decided that they should spend the next year or so in mutual education, discussing world problems among themselves and occasionally inviting others to join in.

According to Alexander King, within an hour they had decided to call themselves The Club of Rome and had defined the three major concepts that have formed the Club's thinking ever since: a global perspective, the long term, and the cluster of intertwined problems they called 'the problematic'. Although the Rome meeting had been convened with just Western Europe in mind, the group realized that they were dealing with problems of much larger scale and complexity: in short, 'the predicament of mankind'. The notion of problematic excited some because it seemed applicable at a universal level, but worried others, who felt that the approach was valid only for smaller entities such as a city or community. Saint-Geours and Kohnstamm therefore soon dropped out, leaving the others to pursue their informal programme of learning and debate.

The Club initially had no legal form or membership. The group met quite frequently over the following 18 months, often in Geneva, to discuss aspects of the human predicament. Peccei brought in an economist and futurologist named Hasan Ozbekhan, a Turk educated at the London School of Economics and currently running a California think-tank, who shared the group's concerns and thought he might be able to help them to find some way of looking at the interaction of the various elements in the problematic.

Jantsch and Ozbekhan were invited to the European Summer University at Alpbach in Austria in September 1969 for a seminar on the human predicament, and Peccei and King went along to support them. The Alpbach meeting was significant for two reasons. First, that was where the German Eduard Pestel joined the group. Second, the Austrian Chancellor paid a visit to the ESU and encountered the Club members one evening at dinner, where they were talking about their ideas. He was struck by the fact that these were the sorts of issues his Ministers should be discussing together but were not, so he invited them to come to address the cabinet in Vienna in a month's time. The aim of 'pricking' governments, which had rather fallen into abeyance, was thus revived at the request of a government!

In due course King, Peccei, Jantsch, Thiemann, Kristensen (now retired) and Gvishiani went to Vienna. They met with the Austrian cabinet and later with a group of industrialists and bankers, all of whom urged them to 'go public' as they could be useful. This was just the first of many meetings with heads of state during the next couple of years.

Meanwhile, many more members were being recruited and it became clear that a slightly more formal organization was needed. Alexander King, as the 'keeper of the ideology' from the outset, was inspired by the model of the Lunar Society of Birmingham: a group of independent-minded people (such as Wedgwood the potter, James Watt, Priestley the discoverer of oxygen, Erasmus Darwin) who dined together once a month towards the end of the 18th century and discussed the promises and problems offered by contemporary developments in science and industry. The Lunatics, as William Blake called them disparagingly, had no political power or ambitions, but they could see the interconnections between all that was happening around them and the potential for changing the nature of society. No bureaucracy, just thinking and doing.

Eventually the Club did have to draw up some statutes and choose a President (Aurelio Peccei), but that was all. It was decided to limit the membership to 100 because it was feared that larger numbers would become unmanageable and would necessitate a paid secretariat, hence all the usual paraphernalia of finance committees, etc. that they hoped to avoid. So that the Club should be seen to be entirely independent, financial support would not be sought or accepted from governments or industry. For the same reason, there should be no political affiliations or appointments – members appointed to political positions were expected to become sleeping members while in office (this happened, for example, for Okita and Pestel). Otherwise the membership should range as widely as possible, in terms of expertise and geography. A concern with the problematic, and the need to delineate it and understand its nature, was the main requirement for membership, irrespective of political ideology.

The Club saw itself, as indeed it still does, as ‘a group of world citizens, sharing a common concern for the future of humanity and acting as a catalyst to stimulate public debate, to sponsor investigations and analyses of the problematic and to bring these to the attention of decision makers’.

King’s reference to the Lunar Society [See Uglow 2002] shows that he understood clearly the importance of science, and the sharing amongst active, knowledgeable and independent thinkers, to both the understanding and how to deal with the interacting complex of topics that combine to form the global problematic (called in many debates, and here, the global problematique).

The Club of Rome provides just one example of social networking, among many. This is a normal behaviour, looking for friends and allies and working together as a group. Some confused and concerned people make the mistake of bundling all such organisations that are active on the world stage together, assuming that they together form a conspiracy to govern the world according to their united desires – even to the extent of conflating the Club of Rome with groups such as the ultraconservative Bilderberg Group and the Mont Pelerin Society, which aim for unlimited growth, and the satisfaction of individual greed rather than global wellbeing.

One noteworthy aspect of this pattern, of combining with likeminded peoples, is that those who most loudly proclaim against any collective action are themselves joining their allies to form networks aimed at asserting and strengthening their own class interests. Despite the denials of class or social cohesion by conservative politicians such as Margaret Thatcher they, together with other members of this extensive oligarchy, are acting together with their well-funded think tanks to develop tactics and to extend their control. This is no organised conspiracy, but the working of a common class interest by many within the military-industrial-financial complex who follow a shared self-indulgent ideology.

Members of the Club of Rome wished to counter that oligarchical ideology, having recognised the harm being done by organisations such as the OECD – according to as King “a kind of temple of growth for industrialized countries – growth for growth’s sake was what mattered” holding to a “veneration of growth, with little concern for the long-term consequences”. They were soon to find that they were opening a real can of worms by making a challenge to the dominant ideology and to the power structure of the developed world.

This chosen topic, the many interactions among human activities on a global scale, is a complex problem to come to grips with. Members of the Club commenced the search for a suitable methodology. This was provided by Professor Jay Forrester of MIT (the Massachusetts Institute of Technology) at the first major meeting of the Club in Berne in June 1970 (at the invitation of the Swiss government; these people were good at pulling strings and gaining support at the highest level). Forrester had been working for thirty years on the problem of developing mathematical models that could be applied to complex, dynamic situations such as economic and urban growth,

and his offer to adapt his well-tried dynamic model [Forrester 1969] to handle global issues was quickly accepted. On the plane back from the Bern meeting, Forrester created the first draft of a system dynamics model of the world's socio-economic system, which was further developed in a model called WORLD2. [Forrester 1970] An agreement was then signed with a research team at MIT in July 1970, the finance provided by a grant of \$200 000 that Club member Professor Eduard Pestel had obtained from the Volkswagen Foundation. [Further information is available in The History of the Club of Rome, the first thirty years, on line at <http://www.mega.nu/ampp/cor.html>]

It was decided to take a global one-world approach and a team of 17 researchers from a wide range of disciplines and countries, led by Dennis Meadows, assembled vast quantities of data from around the world to feed into the model, focusing on five main variables: investment, population, pollution, natural resources and food. The dynamic model would then examine the interactions among these variables and the trends in the system as a whole over the next 10, 20, 50 years or more if present growth rates were maintained.

The main conclusions of *The Limits to Growth* were given as follows. [Meadows et al 1972, page 24]

If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached some time within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.

It is possible to alter these growth trends and to establish a condition of ecological and economic stability that is sustainable far into the future. The state of global equilibrium could be designed so that the basic material needs of each person on earth are satisfied and each person has an equal opportunity to realize his individual human potential.

If the world's people decide to strive for this second outcome rather than the first, the sooner they begin working to attain it, the greater will be their chances of success.

This model exercise added two extremely important basic points to the existing considerable body of information. Firstly there was an indication of the probable time of collapse, neither immediate nor so far in the future as to be easily ignored. There could yet be time to alter the growth trends and avert catastrophe, and it was important to get started with that task. Secondly there was the identification of an overshoot-and-decline behavioural mode, whereby the limits would not be reached and thereafter held to, but shot past, to be followed by collapse. The warning was clear, as was the need to extend the research and provide a more detailed picture by the construction of disaggregated models with a number of regions (rather than just the one world) and with further sectors and interactions.

The model study and the conclusions reached were the work of the MIT team. The Executive Committee of The Club of Rome added their thoughtful comments, which clearly recognised the changes (the culture change or paradigm shift) called for, the difficulties to be faced, and the need to get going.

“We affirm finally that any deliberate attempt to reach a rational and enduring state of equilibrium by planned measures, rather than by chance or catastrophe, must ultimately be founded on a basic change of values and goals at individual, national, and world levels. ...

The concept of a society in a steady state of economic and ecological equilibrium may appear easy to grasp, although the reality is so distant from our experience as to require a Copernican revolution of the mind. ...

This change is perhaps already in the air, however faintly. But our tradition, education, current activities, and interests will make the transformation embattled and slow. Only real comprehension

of the human condition at this turning point in history can provide sufficient motivation for people to accept the individual sacrifices and the changes in political and economic power structures required to reach an equilibrium state. ...

This supreme effort is a challenge for our generation. It cannot be passed on to the next. The effort must be resolutely undertaken without delay, and significant redirection must be achieved during this decade.”

Here is that paradigm shift, that change of culture, clearly identified with the recognition of a “supreme effort” that would “require a Copernican revolution of the mind” and considerable “changes in political and economic power structures”. The general reaction shows how that challenge was rejected, then fought against and defeated.

The report was widely reported and discussed, and met with considerable criticism. Some claimed that the whole exercise was futile, that it was not realistic to model long term.

“No present modelling techniques will give valid forecasts going into next century”, “there can be extensive yet unpredictable influences that cannot be forecast” and “the conclusions of the model cannot be used to forecast into the next century”. [Royal Society of New Zealand 1973]

This claim was so widespread that our DSIR report included a first chapter on ‘Modelling and prediction’, in which we described the process and value of forecasting. [Grant and Robinson 1974] This included the obvious point that we all refer to expectations of the future in everyday planning, and quoted an OECD report which noted that oil companies try to forecast up to 40 or 50 years ahead. It was evident that the refutation of the very possibility of looking ahead contained an implicit belief that the current growth model, and continuation of current actions, could continue safely for an extended period into the future.

Copies of the model were provided to research groups across the world, and a number (including the Royal Society of New Zealand (RSNZ)) reported alternative model experiments which gave more optimistic results. Claims were made that such changes were relatively minor, and thus had demonstrated the fragility of the model. Our analysis of such model experiments showed that most were similar to those already carried out and reported in *The limits to growth*, and the changes were by no means trivial. Some were highly imaginative.

The Royal Society of New Zealand was particularly outspoken.

“We do not accept the predictions of the model for the next century because other experimenters and ourselves, using different but equally valid relationships, have got different results ...” [Royal Society of New Zealand 1973]

Tests of runs by the Royal Society of New Zealand identified a ‘crowding multiplier’ as their major alteration to the basic model, despite their statement that it exerts “only a minor influence on the model”. Their curve, which did not fit the data at all, assumed a considerable change in birth rate with population density around the (then) current world value. A considerable, and unwarranted, impact – with population growth automatically reducing very considerably as the world population grew – was thus guaranteed. [Robinson and Grant 1975, and in particular Figure 4 of birth rate dependency on crowding as assumed by the Royal Society]

They had a graph of population density against a “crowding multiplier” (births per 1,000) for some Western countries. The data scattered around birth rates ranging from 0.8 to 1.2, with no evident trend. On this the Royal Society group had drawn a trend line, which dropped from a crowding multiplier of 1.4 at very low population density (above any observed figure) sharply to a then constant 0.5 at medium to high population densities. The majority of the countries were then well above that supposed trend line, being scattered about 1.0 at higher population densities. The placing of the maximum slope at the current world population density meant that any variation in

population would have a considerable impact. That curve had no relationship to the data and was far from the measured numbers. This was strange indeed.

It was clear then, and even more evident today, that the Royal Society (RSNZ) were, and are, apparatchik 'scientists', obeying their masters and taking care not to step out of line by blocking critical analysis.

It was evident from our very thorough study of critical analyses that *The limits to growth* was a sober and realistic attempt to examine the consequences of unbridled growth. The authors included some expectations for further resource discoveries, and improved technologies. Indeed there is one sense in which they were too optimistic, since they assumed no immediate limitations on energy supplies, and within a few years of the publication of their report the oil shock hit the West. Other problems of food shortages and pollution impacts have become apparent, and may represent early stages towards a more complete collapse around the year 2030. The critics introduced rather extreme assumptions in order to force an overly optimistic outcome. The assumptions included effectively unlimited resources, pollution down to 10% of expected levels and effectively unlimited food – and these are not trivial. In addition to the remarks made earlier regarding the validity of the effect of crowding on birth rate, it must be questioned whether we wish a future in which population is limited by an uncomfortable degree of overcrowding. [Grant and Robinson 1974; Robinson and Grant 1975; Robinson 1979, page 121]

Instead of arguing for a further study, which could work towards an exploration of options and the definition of a preferred reaction, most commentators chose to deny the message, and to search for justification of that rejection. One of the more bizarre was a test carried out by a Sussex University team in which they ran the model backwards, and found that it did not retrace its steps exactly. [Cole et al 1973] They felt that this was significant. Any applied mathematician could easily recognise the ridiculous nature of such a procedure – a model involving feedback loops is designed to operate in one direction in time, and cannot be run backwards in this manner.

“Reversing the sign of the solution time increment to make a feedback model ‘run backwards’ must radically alter the entire dynamic character of the model. With a negative time increment, negative loops are converted to positive ones ... Normally insignificant errors tend to accumulate with each cycle of computation.” [Meadows et al 1973]

Any such model would be expected to work easily in one direction and blow up uncontrollably in the other, driven by reversed feedback and by round-off error in the computer calculations. Try to imagine water gathering itself and flowing back into a tap.

However the major criticism did not focus on either the model or its assumptions and input data – it was a refusal to countenance any challenge to unbounded growth. This was clearly stated in a 1972 World Bank study of reactions to *The limits to growth*, which concluded that:

“A majority of the reviews considered the no-growth implication of the model to be its major conclusion. Most of those opposed the no-growth prescription, but did so for various reasons – among them being tradition, implications for liberty, and implications for income distribution.” [World Bank 1972; Robinson 1989, page 119]

That refusal to even countenance any limits or any challenge to economic growth has been repeated many times, as by the Royal Society of New Zealand in 1973 and in a recent 2012 paper.

“To introduce zero economic growth in New Zealand implies freezing of the present relative and absolute levels of income or an equalisation, presumably through the tax system. The latter would require a disposition on the part of those on high and even on moderate incomes to sacrifice large parts of their income to be handed to the poor. We do not believe this can happen. Economic growth seems essential ...” [Royal Society of New Zealand 1973]

“The truth value of this report does not lie in the details but in the thesis – which offends most philosophies and many religious beliefs – that one may take seriously and scientifically the fact that the finiteness of the world and its resources means radical changes are required to prevent collapse. This is a change of scene from that in which economics and politics usually take place, and can be seen as a turning point for civilization. It allows us to see that many old ideas about progress are based only on a desire for instant power without taking into account the limits, which is then turned into a rational theory. At this level, obviously only a simple line of argument can persuade.” [Bouleau 2012]

Facts and reality are here denied by philosophies and religious beliefs. The resultant growth impetus is supported by a self-contained logical system, which is based on many unstated assumptions and ignores the physical reality. Here simple string of logic leads to this insistence on growth despite the evidence that the planet is finite, and too great a human activity is doing considerable harm. ‘Freedom’ is proclaimed a universal and fundamental good, with absolute priority. That ‘freedom’ is defined by the ability to control and profit from the private ownership of business and property, not the freedom of the worker to a good life. Such private ownership is possible only within a capitalist economy. Capitalism demands growth, as is made clear in a later chapter, “Economic cycles and excess capital”. The conclusion is that, since freedom is a basic requirement of civilisation and is dependent on permanent growth, any questioning of the growth imperative must be fought against with all force available.

This is a class-based concept of freedom. It gathers power and goods to one dominant class and strips everyday freedoms from others. The worker is denied a strong union, good working conditions and adequate pay – and so loses the ability to raise a family with security, to share in material progress and live with dignity. The basic requirements for democracy are disappearing as media and political organisation are distorted, while the questioning of science has been destroyed. A political ideology trumps reality.

Many willingly lie in the service of that ideology. One milestone in the developing expression of concern over environmental damage was the United Nations Conference on the Human Environment at Stockholm in June 1972. One reaction to counter that initiative, by a group of powerful international figures, was to set up a project which could include both environmental and economic factors in a new model with the aim of showing that economic growth could continue in a benign form.

Consequently in 1976 a United Nations team headed by economist Wassily Leontief announced that no limits to economic growth were foreseen. The first news of the ‘United Nations’ ‘disproof’ of the physical limits to worldwide material production, via a press release, was greeted with cries of delight from the business community. The report claimed a firm ‘rebuttal’ of The limits to growth, and the widely reported press release was unequivocal.

“Among the most significant aspects of the study are its rejection of predictions by the Club of Rome that the world will run out of resources and choke on its pollution if it continues to expand its economy.”

As a scientist I could not comment until I had read the full report, and I immediately wrote away for a copy. This was slow in arriving, and it was only in September 1977 that I was able to prepare a rebuttal, which was submitted to the National Business Review, which had reported the Leontief statement prominently.

The summary of the report stated that: “No insurmountable physical barriers exist within the twentieth century to the accelerated development of the developing regions.” [Carter et al 1976] Anybody who had read the forecasts of *The limits to growth* would know that there had been no suggestion that the world might run out of resources the twentieth century – the modelling

suggested such a possibility in the first several decades or middle of the twenty-first century. This brings to mind the tale of a man who fell down an elevator shaft of a nine-story building. As he was plummeting head first, he called out as he passed each floor, 'All right so far.' Leontief stopped his forecast after the sixth floor (2000) well above the ground (2030) and reported that all would be well. It was a con.

The United Nations study failed the original brief in that there was no modelling of the environment, and indeed the model output of resource use and remaining reserves tended overall to repeat the pattern of *The limits to growth*. In essence the two reports, *The limits to growth* and *The future of the world economy*, cover much of the same ground, and from similar input data, present similar forecasts. Other commentators, including a strong critic of *The Limits to Growth*, Sam Cole, reached the same conclusion – that this work had no value – and these were referenced in my manuscript.

The article was turned down, since the editor felt that the readers of the *National Business Review* would not be interested in such an 'academic' debate. Yet I am well aware that the early publication of a press release (when the full text was not available) provided a clear message, which was reported and which helped to form the 'collective wisdom' of the business community. Many economists, businesspeople, politicians and the general public were left with the false belief that growth could continue for a very long time with no adverse consequences. It is still believed today, with many critics perpetuating the public myth that *The limits to growth* had been wrong, saying that it had forecast collapse to have occurred well before year 2000 when *The limits to growth* had not done this at all. [Lomborg and Rubin 2002, referenced in Turner 2012a] A thorough account of *The limits to growth* as well as associated debates and developments is provided by Bardi. [Bardi 2011, referenced in Turner 2012a]

The Club of Rome itself soon backed away from the implications of global limits to growth, with its message that the growth imperative had become dangerous and must be rejected. While the second report to the Club of Rome [Mesarovic and Pestel 1974] was largely in accord with the first, concluding that the present crises are not temporary but reflect a persistent trend inherent in the historical pattern of development, the authors fudged the key issue with a play on words. They described existing economic growth as "unbalanced and undifferentiated growth which is at the heart of the most urgent problems facing humanity", and argued for the concept of a benign "organic growth", which could lead to "global harmony". It is difficult, if not impossible, to define with any precision just what this "organic growth" might be, except that it involves a degree of "international cooperation" which would make the world safer for the multinationals. Business could then continue as usual.

Throughout that study the complexity and interdependence of the world system were continually stressed. From the point of view of a systems analysis of global behaviour, the preferred solution of increased cooperation and interdependence appears curious. In simple terms, if the interconnectedness has increased the possibility of a systems breakdown, it would be more sensible to introduce more diversity into the system; which, according to ecological theory, would lead to increased stability. [Robinson 1979, unpublished report to UNESCO]

There are many examples of the way that the Club of Rome moved steadily away from the concept of limited growth. One was the report *No limits to learning* [Botkin et al 1978] under the direction of Club founder Aurelio Peccei. As the title indicates, this moved the spotlight away from the activities of the corporate business world that faced concrete limits, and on to the education system, which could be called 'unlimited'. Peccei was scared by the implications of the initial report, and had retreated to displacement activity.

I attended a public presentation of this report in Paris, where we were presented with a damning (and, indeed, overstated) critical assessment of existing education systems. When I asked whether this called for the equivalent of a cultural revolution, the entire overthrow of the system and its replacement with a something new and better, there was an embarrassed silence before the chairman, Aurelio Peccei, moved the discussion on to safer grounds. Later over coffee one of the authors (Alexander Botkin) told me that I was quite correct, but that it was not possible to voice such an opinion in that forum, under the direction of Peccei. They were working within the existing paradigm and limited to making tut-tut noises on the periphery.

Most Club members were really scared about what they had uncovered; this was too big a challenge, placing their entire lifestyles under threat and asking for a huge change. Further Club of Rome statements have continued to express concern but denied any real change with calls for 'optimism'.

"We, the members of the Club of Rome, are convinced that the future of humankind is not determined once and for all, and that it is possible to avoid present and foreseeable catastrophes – when they are the result of human selfishness or of mistakes made in managing world affairs. It is important to emphasise the signs of hope and the progress accomplished. We must also combat the threats to humankind, and be aware that these issues of survival are becoming ever more urgent.

The virtue of optimism that becomes rooted in the human spirit would appear to be an essential requirement of our times. We believe that, in order to counter the current trends towards either arrogant triumphalism or pessimism or resignation, we must adopt an attitude of confidence based on personal commitment and optimism, willingness and perseverance by all responsible citizens.

We believe that every human being can choose to take charge of his or her own future rather than be a victim of events. Imagination and creativity of every individual, combined with a greater sense of social responsibility, can contribute to changing our attitudes and making our societies better suited to cope with the multifaceted crises that trouble the world. We believe that the information society that is evolving, although it involves clear risks and constraints, offers considerable opportunities for building this better future." [Club of Rome 1996]

What a nonsense it is that "every human being can choose to take charge of his or her own future rather than be a victim of events" and to rely on "imagination and creativity". The overuse of jargon and buzz words, and call for a relabelled growth continues.

"Accumulated experience suggests that we should be operating within a paradigm of organic growth and holistic development" [Club of Rome website 2012, <http://www.mega.nu/ampp/cor.html>]

The dates, 1996 and 2012, of these statements is significant. It seemed in 1972 that there was time to commence a worldwide process of change. By 1978, when I attended the tenth anniversary meeting of the Club of Rome as the New Zealand representative, I was aware that Peccei was being overly hopeful when he spoke of ten years to save the world. The ten years had already passed and in 1978 it was already too late. Since then the call for that 'ten years to save the world' has been repeated many times, in many forums, becoming ever more unrealistic. The proclaimed 1996 "attitude of confidence" is foolhardy and unrealistic.

Here we have seen the reaction to the very obvious point that the earth is finite, backed by a wealth of information and models of global developments. This was the insistence on growth to sustain the existing political/economic system, not for change to a fundamentally new system that works within the given parameters of reality. There were the many ignorant alternative experiments that showed a complete lack of professional integrity and knowledge of such models. There were the blatant lies. There has been a refusal to face the message and a withdrawal by those who opened the debate.

Collectively, humanity could be far from an ignorant organism that grows to eventually overpopulate and destroy its home. This is a highly intelligent and well-organised species. Yet the calls for growth have magnified at the very time that the need to pull back and reduce has become apparent. Surely Pogo was right with the 60-year old saying “We have met the enemy and he is us”. With the proviso that those of us who have looked reality in the face and tried, and so signally failed, to raise consciousness cannot be included, I feel justified in now saying, with a twist to Pogo, “We have met the enemy and he is you”. I accuse. I accuse many former colleagues of cowardice as they ducked and stayed comfortably within their prescribed job descriptions and failed to speak out, refused to face and investigate the global challenge. Future generations will suffer horribly and the responsibility lies with those who became aware and kept quiet.

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Chapter: A better way

During the late 1960s and early 1970s, despite increased prosperity many people were dissatisfied with their societies. There were not only the warnings of growing global problems and approaching limits. There was a widespread appreciation that the decades of growth since the end of the Second World War had not produced a good life – many saw that they would be trained to conform and then spend most of their time getting up, off to work, the commute home, and a few hours with the television – an increasingly robotic existence. Concerns had been mounting over the place of technology in a democratic society, with calls for worker participation in control of business and manufacture. [Emery and Thorsrud 1969] Young people began to ask for more from life than a focus on work and economic activity. Those concerns, together with the challenge of the message from *The limits to growth* and the many similar analyses of the global situation involved nothing less than a desire for a paradigm shift, a transformation of society, a cultural revolution. This was believed to be possible; many could see a way forward, a path of evolution turning away from growth towards a steady state economy. This was a society coming of age, moving past the successful growth of youth to the stability and wisdom of maturity. There could be a steady evolution as the gap between the old and the new was not too great, and could be bridged.

There were no great demonstrations in New Zealand such as those which brought France to a standstill in May 1968. But the same recognition and desires were building. Solutions were widely debated. Many of the ideas were naïve, but many pointed towards a better society, providing the seeds for social progress in balance with the surrounding environment.

Futures research grew from that mix, as the new Values Party appeared and the old parties reacted. The 1972-75 Labour Government experimented with support for ‘ohu’ or communes, as well as setting up a national shipping line. It was the conservative National Party that set up the Commission for the Future in 1978, having been influenced by a visit by futurist Alvin Toffler [personal communication, Hon Hugh Templeton, see Toffler 1970]. While his idea of ‘future shock’ and rapid change in a stagnating culture does not hold up to careful analysis, his concerns with the global scene were real.

The core of the initial futures research work from 1972 on concerned the writing of sets of scenarios. The belief was that it was not possible to predict the future, since human decisions yet to be made would be decisive. That is what we were told by the existing experts, and at an early stage of the learning curve those of us who took up the challenge of such wide-ranging holistic research needed direction to help get us going. The work was then made up of alternative future pictures, or

scenarios, with each scenario following a 'paradigm', a 'world view', a set of common beliefs and policies that would be based on chosen values. In that way each 'forecast' would follow the consequences of some uniformly applied ideology. While there were reality checks, as physical inputs and limits were included, the output was not a forecast of what was probable but a set of choices.

One such possibility was of a 'leisure society'. This would build on the prosperity of the time to spread the benefits more widely and organise society more wisely – aiming for quality of life rather than quantity of goods. In that picture, society in total would decide to limit human activity in order to protect the environment and carefully manage needed resources – and thus commence the evolution from growth to stability. That move from a focus on consumption, together with improving technology and organisation, would permit a steady reduction in work and increase in leisure time, for everybody. Such a move would be associated with policies towards increased equality. The aim was to take account of the surrounding world (including the invisibles of water and air quality, and much more, that were ignored by private-enterprise business) and to improve social conditions right away. There was to be no longer a reliance on growth to provide solutions to every problem some time off in the future. The problems were largely "the paradox of poverty and plenty" and "how the fruits of human progress are destroying modern society and the environment". [First chapter heading and subtitle, Robinson 1989] Growth had not led to universal wellbeing (and has not done so since that time), and more of the same was not a solution.

The goal was to move to stability, building on the success of past growth. By the 1970s most New Zealand households (as across the developed world) were well equipped with labour-saving and entertainment devices. Some 96.4% had a refrigerator, 90.6% a washing machine, 85.6% a telephone and 84.7% a television. [Franklin 1978, page 13] It was possible to satisfy all reasonable needs. There were, and are, no physical problems in developed nations such as New Zealand with the universal satisfaction of basic human needs. The difficulty is organisational, the old problem of how to get a mass of people to care for one another (for themselves as well as the struggling) and act together; how too to respect and care for the environment they have come to dominate.

There is no need for cutthroat competitive, and a society may flourish without the impetus of economic growth; indeed the situations of many may improve. Less focus on competition can bring a decrease in inequality and the restoration of dignity for all workers. Independence and initiative flourish best within the freedom of security, when a challenging or critical thought does not result in a reprimand or loss of employment. Once again society may cherish the maverick of yesteryear when the requirement to conform in order to protect position and employment is relaxed.

There was resistance to such ideas. For example, despite the evident prosperity that he described, Professor of Geography Harvey Franklin focussed on "anxiety", and wrote of "removing the limits on growth" in a thinly veiled attack on 'welfarism'. [Part of the title and chapter heading, and section heading, Franklin 1978] He argued against stability.

Thus, "the consequences of insufficient growth would be to achieve every result the New Zealanders have sought to avoid: a widening of class disparities, a collapse of honoured programmes to promote social and individual welfare; a massive migration of the young and the able; a psychosis arising from an awful sense of defeat and a realisation of opportunities squandered; no doubt a style of national debate more stupid and more discriminatory than the present one. Should New Zealanders fail in restructuring their economy – and that result cannot be dismissed too lightly – then in all probability the economy would eventually settle down to some uneasy equilibrium of a Latin American sort; with no difficulty in finding a caudillo. The choice does not lie between growth and no growth. It lies between indiscriminate growth and intelligent, more allocative, growth. But there is some doubt as to whether or not the institutions of the welfare

state as presently constituted and inspired are capable of implementing such a choice.” [Franklin 1978, page 380]

These are weasel words. As with the many organisations listed previously, a play of language dismisses any limits to growth and invents a new, benign, version. Pretence at social concern is accompanied by a savage attack on the communal solution to the challenge of caring for others, the welfare state. As with the earlier Royal Society of New Zealand report, the very idea of moving from the growth ideology was too frightful to consider. Such insistence on free market growth formed the basis of another of the scenarios considered. That particular part of the analysis failed to describe the high unemployment and sales of public goods that followed, being not able, or prepared, to face the true consequences of such an export-oriented ‘growth’ policy.

When there is a call for growth, there is no answer to the questions: Why? For what? This country, as others in the ‘developed’ world, has the wealth. The world is overproducing. This is the cry of an adolescent wishing for adventurism, not of a grown person who has matured and now must learn to live wisely. There is however an answer to those questions, and a logic behind the apparently illogical denial of reality – it is greed and power as the growth model demands that people should strive to labour and produce more for the elite. The statistics of so many countries over recent decades show the results of the growth imperative – the widening inequalities, the benefits to the better off, the struggles of the middle class, and the unemployment and impoverishment of the underclass.

Many however found the concept of stability attractive, allowing for greater immediate responsibility towards one another and the environment. The manifesto of the Values Party, established in 1972, sketched a progressive, semi-utopian blueprint for New Zealand’s future as an egalitarian, ecologically sustainable society, including zero population and economic growth. They took 2% of the vote (in a first-past-the-post electoral system) that year and 5.2% in 1975 (which would have given representation in Parliament under the later MMP system).

A number of surveys carried out by the Commission for the Future (1978-1982) indicated significant support for alternatives to economic growth. [Robinson 1989, Chapter XV “What the people want”] An “open-ended set of discussions in which groups described their goals for New Zealand” found that a majority were of the opinion that “a change is needed in the attitude that economic growth is necessary”. Many thought the present standard of living was adequate and statements included “we must adapt to what we can support”, “quality of life is more important”, and “New Zealand is too capitalist, there is too much stress on personal gain, wealth and status”. [Zebke and Robinson 1979] A Televote, a carefully crafted random survey of 1,750 persons who could be considered representative of the New Zealand population, showed a desire for a balance between economic and social goals. The two extremes each had a minority support – 12% for “a free enterprise society in which major economic growth provides great economic benefits for all” and 10% for “a society in which people limit personal ambition and build communities that are in harmony with nature”. A strong, active government was preferred by 68%, and 63% wished for “full employment and that the government provide socially useful work, and ample leisure time”. [Becker et al 1981]

While the concept of a paradigm shift to a leisure society was in some ways a utopian vision, it was a realistic goal within the society of the time, before the welfare state and the public service were gutted, and when there was still the protection of import controls for national industries. In this scenario everyone is adequately cared for, with a meaningful job, and can belong to society. Zero GNP growth is then a success and not a measure of failure and depression, and does not result in unemployment. Full employment is attained by sharing work, since efficiency allows the ready production of adequate goods for all. A drive for maximum profit, with the rejection of the less able or fortunate, is not a priority. With the end of consumerism and the creation of artificial

demands, many move from unneeded work to do something useful and join in the general reduction of working hours.

New Zealand, as many developed countries, had a mixed economy that had evolved out of a long period of political struggle, with public ownership of many essential services (rail was in public hands and the 1972-75 Labour government set up a national shipping line) side by side with private ownership of many businesses. Import controls protected local enterprise. It was neither communism nor liberal free-market capitalism, but rather an amalgam of socialism and private enterprise. There was consequently a division and a balance of power among many divergent streams, such as unions and businesses, local and central government. This was a democracy where major decisions were strongly influenced, or determined, through the ballot box; there were still a good number of active members in each of the major parties.

The new understanding of ecology included the principle of systems diversity as a requirement for stability. That concept supported the move to greater self sufficiency, with countries breaking away from an overly linked world in order that shocks would not take everyone down in a unified system. Such ideas were being explored on the international stage, as within the Non-Aligned Movement where nations such as India and Yugoslavia sought a way forward of their own, not following the Cold War choice of Soviet communism or American capitalism. Many Third World nations were resisting the increasing demands that they take loans from international banks to become indebted. Such debts were consistent with Western Cold War tactics and the considerable borrowing by Eastern European countries later played a part in bringing down the USSR, as its protective empire fell apart.

The remarkable improvements in technology and in particular the promise of new generations of computers were expected to replace a considerable body of human drudgery. The spread of modern appliances had reduced the drudgery of the home and freed housewives for other activities, thus adding to the potential work force. If the required work was shared more widely, a leisure society was coming. Ideas of improvements in employment, including equal pay for women, flexible working hours and worker participation, were debated. Straightforward calculations showed that the well-established 40 hour week could steadily reduce towards a universal 30 hours, providing for an expansion of leisure time while providing the same level of material goods – indeed some analysts suggested even greater reductions in working hours.

There was considerable agreement among the elements of this policy mix. Thus flexible working hours within the public sector would both allow a greater freedom in organising private life and spread movement to and from work away from peak traffic hours. An end to population growth would move many women into the work force and share the tasks more widely. Many social problems could be dealt with rather than left for some ever-retreating tomorrow, when economic growth might finally provide the wherewithal.

The picture was in many ways a standard prescription for a decent society. One example among many is provided by the 1907 platform of the Wisconsin Social-Democrat Party, which included the elimination of corrupt power, tax reform including a graduated income and property tax, free medical care and school text books, public works projects to improve the environment and provide work for the unemployed, municipal ownership of utilities, pensions, higher wages and shorter hours for working people, and better living conditions for everyone [quoted in Niven 1991, page 137]. To this was added an appreciation of the many advances since that time, the successful satisfaction of all reasonable human needs and the new recognition of the looming limits together with the damage done to the environment.

Two major paths stood out in the mass of alternative scenarios, those aiming for or against the imperative for growth. The picture of stability outlined here was feasible and there was no conflict

within the scenario prescription. Much of the paradigm was based on elements of existing philosophies (including the Christian concept of care for others and the Buddhist idea of sufficiency) and was desired by a significant part of the population. A consistent aim was to reduce the power and wealth of the dominant few while improving the lot of those presently at the bottom of the heap. This picture built on what existed, strengthening national solidarity. It should never be forgotten that an alternative was available and that the call from the right of TINA (There Is No Alternative) was false.

Events since then have carried the country (and, indeed, the global economy) far from that starting point and any recognition of limits to the physical world has gone. Now a considerable revolution would be required to recover what is lost and set off down that hopeful road.

* * * * *

Chapter: A personal career choice and apprenticeship

The story of my career provides an overview of the brief flowering and eventual suppression of professional research into long-term trends and the looming problems of the future in a new and challenging environment. This largely autobiographical account moves from the widespread concern of the early 1970s to the counter-revolution of the early 1980s. A fitting symbolic act displaying that reversal of concern and the assertion of central power on the global stage is provided by the complete rejection in 1982 of the global report to President Carter [Barney et al 1982] by the newly elected President Reagan.

Both the initial concern and the later refusal were worldwide, in New Zealand at the corner of the Pacific Ocean as in Australia and across Europe and America. In 1973 I was a DSIR scientist, publishing papers on *The limits to growth*, before moving on and reporting to the Director General on futures research in Europe and representing New Zealand at OECD Interfutures. Yet when I returned to New Zealand in 1984 with a UNESCO project and many ideas for ongoing work relevant to the Pacific I found myself unwanted; doors were firmly shut, there was no one who would talk as the previous concern had disappeared off the radar.

Thus my personal story tells of the development of this topic, of its brief flowering and then its suppression. It illustrates an early apprenticeship and the learning curve as I got to grips with the interdisciplinary topic, building up an appreciation of the strengths and weaknesses of the various methodologies, recognising which work, and whose directions, were robust and of best use as well as learning of the empty spin and inaccuracies of many showpieces. Such an all-encompassing concern demanded a holistic approach very different from the comfort zone of well-established disciplines with their set methods. A number of my early colleagues drew back from that challenge and retreated into the more comfortable environments of existing disciplinary institutions; for me the challenge was invigorating, the question was too important to ignore.

Such holistic experience and expertise now meets with rejection and sneers. Currently a number of think tanks and the like claiming to research global trends and to explore 'sustainability' are in fact only just plodding slowly through the early stages of holistic research, struggling as the early pioneers once did, while being additionally handicapped by a demand for a political correctness that blocks honest analysis.

Like so many scientists, like so many people from all disciplines and all works of life, I had been swept along in the lively debate when so many of my friends in Cambridge, Massachusetts (where I

was a student) and Kingston, Rhode Island (where I was an assistant professor) had come to recognise not only that the war in Vietnam was destructive, but that the Government of the USA was the aggressor, in the wrong. The belief that we had been born on the right side of the political divide was under question. At the same time, many publications, books and newspaper articles, suggested that there were other considerable problems to be faced. The outcome of such debate was a generation who were ready to dare to question, and who wanted to understand. The academic freedom of university life had suggested that the freedom to think should be used, without fear.

The increasing global extent of many environmental and social problems described in many scientific publications presented an important challenge to science, which could not be adequately dealt with within existing disciplines. The obvious solution was to expand research boundaries and for some scientists to move outside their immediate employment prescriptions. This proved possible in the old DSIR, an organisation managed by scientists, for scientists, where I came to work in 1971.

While I was at the Physics and Engineering Laboratory, I wrote a short literature survey of some aspects of global ecology. [Robinson 1972] This reviewed *World dynamics* [Forrester 1970], *Blueprint for survival* (a suggested path forward published in *The Ecologist* [Goldsmith et al 1972]) and *The closing circle* [Commoner 1971], together with a list of key articles (some highly critical of those works) and with references to associated systems dynamics. I commented as follows.

“This is a survey of the references which we have been able to obtain at this date. The study was initiated after a spate of articles in both the scientific and popular press excited our attention. It seems that perhaps we ourselves should take an active interest in the problems, and the first step is to educate ourselves as well as possible.”

Many reasons for concern were described, but the time scale was not well defined. Where some authors thought of a crunch date not far in the future, and a few who thought the crunch point was very near later came to be quoted in attacks on the concept of limits, supposedly showing how all those raising the alarm had got it all wrong, these were not well established. That question remained to be answered.

When *The limits to growth* [Meadows et al 1972] (which had been on order to the library) was available, and the Royal Society of New Zealand [Royal Society of New Zealand 1973] had published its negative review, I was at the Applied Mathematics Division of DSIR. We were all familiar with computing and the use of models. I had used a computer for complex calculations for my MSc thesis at Auckland (using the new Treasury IBM computer) in 1962, had worked as a summer student with the MIT time-sharing system in 1964 and included computer calculations in my 1966 doctorate thesis, and I have carried out many model calculations since. The computer had become an everyday tool for an applied mathematician.

I was also familiar with mathematical models; each model is a simplification of a complex system, depicting the main forces and behaviours, the results of which can be interpreted to explain and inform. I had considered a number of models of the nucleus in my efforts to explain apparent anomalies in the scattering of polarised neutrons for my masters thesis, constructed a non-linear model of convection for my doctorate, and written papers on models of non-linear shear layer instability, impact welding and the lifetime of a geothermal field.

We were taught the basics of the construction and use of models at MIT. The process can be considered to consist of three phases. Firstly, there is the choice of a problem and of the significant behaviour that will be modelled, as well as the simplifications to be made and key parameters. The model must be complex enough to contain the major features of the system, and at the same time straightforward enough to be comprehensible. It makes no sense to replace puzzling complexity with a mysterious black box. Secondly, the model is constructed and run. This may be largely a

technical task. Thirdly, the output must be analysed and interpreted. That third stage is often key, particularly in systems with a social, economic or political element where preconceived ideas or client requirements may lead to distortion.

My knowledge was surpassed by a number of my colleagues, some of whom specialised in systems analysis. There was nothing mysterious about The limits to growth; we could follow the mathematics and see that the major features of the global system were included and represented in a realistic manner. The choice of the topic and of input data was reasonable, and the interpretation of the model output was sensible. We also recognised the value of an in-depth study of both the report and of objections to the message.

A staff meeting agreed that the model appeared to be realistic and that the question of global limits deserved further attention; the Director authorized two of us to work half time on an analysis of The limits to growth and its critics.

That work involved a study of all the commentators including the major critics, looking carefully at any points raised in order to determine whether the model and the input data should be taken seriously. [Grant and Robinson 1974, Robinson and Grant 1974a, 1974b, 1975a, 1975b] Often, as with the Royal Society of New Zealand alternative run described above, this included finding just what changes were suggested and which had the greatest impact. The model was found to be robust.

“To sum up: all criticisms of Limits, whether intended as criticisms of the model itself or of its assumptions, have been criticisms of its assumptions. No one has produced a telling criticism of the model structure.” [Robinson and Grant 1974a]

I reached the conclusions that those assumptions, and in particular the input data, were realistic. There was at least a strong possibility that the forecast events would occur. The uncertainty – maybe the crash would come, maybe not – provided no reassurance. After all the forecast might be overly optimistic as much as too pessimistic. This global predicament could not be ignored, so I came increasingly to focus on futures research.

During the time that Malcolm Grant and I collaborated on these studies, an author of the second report to the Club of Rome [Mesarovic and Pestel 1974], Mihajlo Mesarovic, was visiting Australia and we asked him to extend his trip to include New Zealand. This was not a happy experience; he cancelled halfway through and we had to apologise to our Christchurch contact, who was forced to cancel a talk there. We were unimpressed with Mesarovic’s presentations and became suspicious of his work.

The model he reported was more comprehensive with the world divided into a number of regions and an expanded construction of sectors, and thus promised to test in greater detail the behaviours described by The limits to growth. However one consequence of that complexity was a reduction in clarity and transparency. A detailed model might contain more information about the real world, but it could also become difficult for even an expert to follow. I thought him a charlatan and showman. Such suspicions were later confirmed to me in Europe where that work was not held in high regard. I was myself further concerned that they had blurred the analysis, and the message, when they suggested that any limits to growth might be dealt with by a shift to a somehow acceptable, yet uncertain, “organic growth”. This was just one of a number of experiences that showed how important it is to know people and their work thoroughly. Nothing should be accepted without careful consideration, although on the other side of the ledger even poor work can hold useful information.

Consideration of another charlatan, Wassily Leontief, and the failed effort to correct his erroneous claims in the media, has been mentioned above.

My subsequent movements in the decade of 1974-1984 were determined by considerable personal problems, and divided for the most part between periods in New Zealand and Europe. Work in New Zealand was focussed on learning the art and extending the basis of holistic long-term forecasting, as well as commenting on some matters of national relevance. After 1978, when I was no longer with the DSIR, I carried out some contract work for the newly formed Commission for the Future. The New Zealand experiences are followed here before moving on to work in Europe, and thus there is some cross-over in the time-line of the two parts of the account.

The first challenge to be met in the formulation of pictures of a likely, a probable or a possible future was how to go about it. This was not research in a standard and well-developed discipline where the methodology had been developed and was well defined, nor would the research be confined within comfortable disciplinary boundaries. This required open-ended, expanded thinking, and being ready to face the unexpected and to investigate unpopular ideas. As well as studying major forecasting and gathering background information on such different topics from many sources, I set about learning the interdisciplinary art. The many publications on methodologies for the most part set down many approaches (often something imaginative dreamed up by the author) without reference to any test or proof that it worked; these could not be taken seriously.

Most think tanks at that time were establishment organisations, often (like the Rand Corporation) connected to the military. A typical output is found in the writings by Herman Kahn, who has been described as one of the pre-eminent futurists of the latter third of the twentieth century. Kahn was originally a military strategist at the Rand Institute and was a founder of the Hudson Institute think tank in 1961. His forecast for the next 200 years announced a turning point, a revolution to post-industrial society and a 'service' economy. The picture is of great growth, to a world population of 15 billion people and average income of \$21,000 (compared with \$1,300 in 1971) in 2176. There is no suggested change in government or economic organization but rather an expectation that things are getting better all the time. [Kahn et al 1976] It was hardly credible.

Despite claims to the contrary, the standard methods did not involve 'thinking the unthinkable' or thinking 'outside the square'. It soon became obvious that one could become trapped within the complexity of a methodology. The topic was complicated enough without surrounding the research with a dense technical or methodological thicket. Anyone can, and everyone must, calmly look around and recognise the obvious. Keep it simple.

"...on the individual level what is required is a series of visits to the local library with the above list in hand, a careful choice of television and radio programmes, and a questioning attitude towards newspaper reporting. Then, once a background has been built up, relax, day-dream and ponder awhile the implications of what has been learnt, and consider your own choice of a preferred future. ... Groups (friends, clubs, or schools) can carry the lateral thinking or day-dreaming one step further in brainstorming sessions. Small groups, of up to eight persons, should spend a couple of hours brainstorming, letting ideas flow freely, interrupted by several coffee breaks (it can be exhausting), before trying to link the main points and see if some concept of a preferred future or of key problem areas has emerged. Ideas should be listed on large sheets of paper pinned round the room; this will aid the final summing-up. It is important to allow any ideas to be expressed and explored, whether they seem at first to be strange, crazy or unacceptable to others." [Robinson 1980c]

Standard scenario analysis provided difficulties from the first, soon involving discussions of values that often led to wish lists for a better society rather than the consideration just where the trends were taking us. I eventually came to recognise the uselessness for the direction of policy of a set of widely differing alternative pictures of what might be possible.

The time-scale involved and the period to be considered should be defined by the analysis, and not prescribed by the researcher. Many studies did however make just such an arbitrary prescription, such as all the many 'towards 2000' efforts of those days, and failed to recognise that there was a time scale implicit in the subject, and that this had been found to extend to at least 60 years ahead, to 2030 and beyond.

It was also important to appreciate the limits of forecasting on that time scale, which must be broad-brush, with a clear description of major trends, and not an attempt at detailed predictions. This is no pseudo-magic, crystal ball mumbo-jumbo, and definite events cannot be foreseen. Many scenario presentations have fallen into that trap, describing a future by an imaginative set of definite, dated events. As with long-term weather forecasts, the general trends can be established, but not the details. However, while dealing with an overview, the picture can only be built up on the firm base of a thorough appreciation of detail, including the many scientific analyses coming from the many associated disciplines. Here the Maoist maxim, "walk on two legs", applies, as a comprehensive overview is informed by many specific studies.

Simple approaches soon proved the most useful in building the total picture, and in particular the conscious effort to explore all aspects of a problem in a brainstorming session, leaving aside preconceptions and judgement for a while to explore unexpected avenues. [de Bono 1971] An early experiment involving just three people proved its value. We found ourselves considering the many aspects of an aging population, and identified factors that remain lacking today in discussion of this 'problem'.

The transformation within New Zealand has been from the rapid population growth of the post-war baby boom, with a large proportion of young, towards a stable or slowly growing population, with a large proportion of older people, associated with a considerable increase in the proportion of women in the formal work force. The number of dependents per worker was decreasing as there were fewer births, and would later increase to around the same as the initial value as people aged. There are as many young dependents to care for in a youthful population, as there are elderly in an older population. While the population was youthful and growing, society had to build more schools, more houses, more roads, more hospitals and all the other structural requirements, while providing support through family benefit for the successful upbringing of a new generation. As the population aged, the needs changed, to retirement homes and different types of health care. Two major difference between the old and the young was that many older people owned their residences so new houses were not required, and that many old people continued (or wanted to continue) to work usefully and had much expertise and collective wisdom to offer.

That set of considerations guided a rough estimate that suggested that the cost of an old population was no more than that of a youthful population. Subsequent debate has focussed on the costs of the elderly, and on reductions in retirement payments as the age of entitlement has been raised, in an attempt to hold those costs steady. There is no recognition of the savings as the considerable expenditure on young families, directly and on structural requirements, diminishes or that the funds freed up there could be spent on providing for the elderly, who represent not a problem but rather the great success of extending the lifetimes of so many people.

An insistence on population growth appears a constant feature of most societies, and is evident today. This is seen in the constant, knee-jerk reaction, attacks on China's one-child policy, which has reduced population growth there by around 400 million. The Chinese culture, in common with many across Asia – and including traditional Maori culture in New Zealand – calls for boys, an old belief based on the ancient need for warriors to protect the community. Women are then second-class citizens. The one-child family policy has consequently resulted in a serious gender imbalance in China, and a similar imbalance is growing in India. The solution is not to allow the population to balloon out uncontrolled, but to alter attitudes towards girls.

However misogynist attitudes dominate. The major theistic religions of the book, Judaism, Christianity and Islam, tell Old Testament stories of tribal warfare demonstrating the secondary status of girls and women. Today these ideas are more powerful than ever, with people of all three groups prepared to kill and die for their religion – and so many believing that such horrific ancient stories are ‘the word of God’. However, an improvement in attitudes toward women is not by itself a solution to the problem of overpopulation; it is just one part of a change from natalist calls for high populations.

Adaptation to the modern situation, of a planet overrun with an excess of humanity calls for a total shift in attitude. The paradigm shift must include fundamental changes in religious beliefs, away from preaching of population increase and domination by mankind, with their tribal gods become ‘universal’ and the ignorance of the planet and other life (which hardly figure in those religions). Sadly, now those religions are dominant in political affairs and more powerful than ever.

The exploration and determination of the probable future involves consideration of the interactions among various key factors, an understanding of different topic, including trends and interactions – which suggests the bringing together of experts from many disciplines to form a complete, interdisciplinary picture. A first set of exploratory seminars (or workshops) in 1976 involved three groups of people: afternoon seminars at the Soil Bureau, Taita (24 participants) and at Applied Mathematics Division, Wellington (25 participants), and a three-day residential seminar at the Cawthron Institute, Nelson (17 participants). [Robinson 1976b] These sessions were part of the learning curve of how to organise interdisciplinary studies. I was the convenor for the afternoon sessions; process consultant W. R. McLennan from the Victoria University Department of Business Administration joined in the organisation of the residential seminar, as I was aware that a wide range of skills was required in long-term planning, and his expertise would make the seminar more effective. Support for the initiative was readily available. Facilities were provided by Soil Bureau, Applied Mathematics Division and the Cawthron Institute. ICI New Zealand Limited provided financial support for several participants who were privately funded and O. Steele of Shell Oil Company assisted with the organisation of the seminars.

These seminars asked: What are the factors that are of most concern to New Zealand in the long term? They also provided experience with the organisation of interdisciplinary research.

The first seminar concentrated on topics relating to agriculture and food. The first part of the afternoon was spent brainstorming the subject in three groups, and in the second part of the afternoon three different groups considered the topics: 1. Stability and diversity. 2. Resource usage and control of resources. 3. Population, motivations, expectations and consumption. Other general topics suggested, but not followed up, were the kind of food we produce well, non-food agriculture, and post-agriculture society.

A number of questions were raised concerning the tension between planning and national goals (assuming or building a consensus) on the one hand, and the freedom to not be told what to do on the other. It was hoped that the presentation of informed options would increase participation. Similar concern over possible conflict between the freedom of the individual and the needs of society was voiced at the other seminars.

In the second afternoon seminar, participants decided to break into two groups, to deal with social values and physical constraints. In the second part of the afternoon, reports from the groups were followed by a discussion of alternative sets of society values on which to base future scenarios. It was hoped that a futures institute “should act as a discussion leader, to stimulate debate, and should be sufficiently independent that members may take part in TV debates, for example.” The Commission for the Future (1978-1982) certainly developed in that way, with its futures game,

approaches to schools and the like, but its independence was limited by its position as a Government quango so that when Government became dissatisfied, it was disbanded.

The residential seminar had the time to proceed through several stages, starting with an icebreaker exercise. The objective, to “create social ease and meaningful interaction among the participants”, was satisfied. It was a straightforward exercise – the game playing of some artificial management seminars is off-putting for many and serves to divide the group rather than to produce general social ease. Following a problem identification session, members chose problems they wanted to work on and formed two study groups.

Group A decided to “find means of determining the biological and physical constraints to population size and quality of life in New Zealand” by, firstly, the identification of the principal constraints and, secondly, the identification of suitable research projects.

The focus of Group B was very different: “to consider elements of small self-dependent communities, based on the requirements of a convivial society”. That concept provided a number of attractive ideas for a post-industrial society with reference to the work of Ivan Illich, whose call for restructuring required a form of socialism that created “autonomous individuals”. As with Illich (“It would distract from the core of my argument to deal with political strategies or tactics.” [Illich 1985, page 16]), there was no indication from this group of how that could be carried out.

Only minutes after it began its work, two factions began to emerge. A first attempt by the process consultant to deal with this by encouraging the participants to “own” and deal with the conflict failed, but soon it became clear that the polarisation between the factions was too great, resulting in the formation of a breakaway Group C. I found it fascinating to have the varied behaviour of people pointed out to me. One individual, whose often insightful contributions I rather appreciated, was evidently just not a team player, and was often wandering away from the group.

Group B came up with a set of ideas for the formation of around 400 largely self-contained communities of perhaps 10,000 people each. Group C preferred “organic development based on people’s choice” and “the maximisation of personal freedom to choose consistent with the public good”. A similar tensions was found in most of the seminars, between the level of planning that would solve major problems by national rulings (which would restrict individual actions) and the ability to act independently (which might then act counter to national priorities). Long-term planning obviously extends into the political arena, and group dynamics including shared world views can be crucial to the successful operation of research teams – as I was told later by many researchers including Sam Cole at the University of Sussex Systems Policy Research Unit (SPRU) and Jacques Durand at the Délégué à l’Aménagement du Territoire et à l’Action Regionale (DATAR).

The report-back session was dominated by the presentation by Group B, due to critical remarks from Group C members and the airing of the conflict between those two groups. Such disagreements are a natural part of such a wide-ranging discussion and should be neither feared nor avoided. This was followed by a session to define needed research projects in futures studies, and a final review and evaluation of the seminar as whole, with support for further such workshops – although one participant felt that the seminar had offered members too much choice, and this had proved difficult to work with.

Those sets of workshops recommended a normative approach, believing that “food and energy requirements (for example) will depend on value judgements and the image of the society that is being planned.” Indeed, “in a sense there can be no non-normative forecast since even a continuation of present trends implies an assumed set of values.” The presentation of several options was essential, as “the development of alternative future scenarios will allow decision makers and the public at large to formulate opinions and to make immediate decisions in a more

informed manner, with a greater range of options to hand. This suggested that one of the tasks for a futures institute would involve consideration of values sets, as “in order to develop different scenarios there is a need to define a range of society goals.”

That direction was followed in four subsequent workshops on values. [Robinson 1977d] Each involved six to eight participants, with some preference for six as with the larger number one or two participants often withdrew from part of the discussion. The format was of three to four hours of brainstorming, followed by a one-hour summing up session. This was an exploration of different values sets, and the groups were not representative of the population at large. Three groups – DSIR scientists, trade unionists, and women with an active interest in feminism – set down their preferred futures. These included a vision for New Zealand in which all New Zealanders were involved, an integrated lifestyle with decentralised decision-making in which cooperation would replace competition as the driving force, and an emphasis on communitarianism and equality rather than individualism, with self reliance and respect for diversity.

The fourth group, members of the New Zealand Club of Rome, was unable to formulate a set of values, since there were two major points of disagreement. Some saw a slow rate of change as beneficial while others felt that economic growth was needed to prevent harmful conflict from arising. Some felt that planning was of no value, as unexpected problems would always occur. There was a great deal of concern for social cohesion, noting a feeling of helplessness in the community and little prospect of improvements in relations between people. Some asked whether old values were being thrown away without being replaced by new ones, even whether Christian values had become a passing norm. This group was in many ways the most realistic, as many of those identified tensions and differences have grown since. The conflict between individual freedom of action and collective acts (that can result in greater freedom to many while limiting others) is greater today, the choice more stark.

An internal report to the Commission for the Future on the organisation of futures research continued the emphasis on beliefs and desires, and the provision of a set of possible scenarios.

“It should be recognised that we each have a particular perception of reality, a worldview or paradigm, and that it requires some effort to comprehend an alternative paradigm. Yet if the output of the project is to be more than the description of a simple continuation of present trends and present thinking into the future, the chosen scenarios must reflect different worldviews, and all contributors much be prepared to provide inputs which relate to future pictures which they themselves may not favour. A short-term plan is usually intended to determine the best course of action in accordance with present society and government goals and desires. Long-term planning is designed to open up options and to question the basic assumptions of present decision-makers.” [Robinson 1979c]

That guidance was informed by many interviews and discussions in Europe; notes of a particularly useful interview by Commission for the Future Director Dick Ryan and myself with J. Durand of the French group DATOR (May 1979) were appended. Another influence on this work was the impressive report of 120 Canadian conversations within the Environment Canada Conservor Project that had covered considerable ground and found widespread concern.

“The most consistently expressed recommendation for action that has emerged in the course of this enquiry is: That a national dialogue be mounted with the purpose of engaging all Canadians in understanding the nature of the dilemmas facing us and the opportunities and challenges they represent.” [Starr 1976]

Many were joining in a similar dialogue in New Zealand as the question of population arose. This had become a topic that caught the attention of many groups. [Robinson 1977b and 1977c] Opinions varied considerably, with some arguing for a much greater population. Professor Gibbs

had suggested that New Zealand could feed 50 million people, and that an increased output of food would be possible if the population were to increase. I countered with an estimated maximum (not optimal) carrying capacity of 12-15 million, and suggested that if New Zealand were to contribute to the feeding of an increasingly hungry world, the population should be held to a much lower level, perhaps 5 million. [Robinson 1976a] These estimates were based on the maximum number that could be fitted in without starvation, and are far higher than any sensible level for a good life.

As with the debate on The limits to growth, some of the argument was absurd. Gibbs had based a part of his estimate on the claimed productivity of the Netherlands, which at 3.65 people per hectare was far greater than the New Zealand value of 0.52 people per hectare. Obviously the productivity of land varies greatly across the world, but even more significantly the Netherlands is a net importer of protein, feeding animals on imported grain. The benefits of a stable population supported freely available contraception and abortion, which was the topic of the Royal Commission. Gibbs was intent on arguing his religious ideology (Catholic); I countered with support for greater control for women over their bodies.

The construction of such a set of scenarios proved to be difficult and confusing in practice, and the implicit belief in the value of logical thinking as the guide to progressive policy was naïve. Some years later I cast a critical eye over all that I had learned, and experienced, and concluded that the most straightforward and useful approach would be to set down “the description of a simple continuation of present trend and present thinking into the future” even though such a course of action was counter to my common sense. On the other hand, the ‘pulsing’ development outlined then has proved itself. Here the unifying whole picture identifies those factors that require further study, leading to ‘briefs’ or topic information gathering. These briefs are then brought together to illuminate the whole picture and inform the further scenario construction. This is a long term process; once one round of scenario or forecast building has finished, there will be debate and more points requiring clarification; further events will test the various pictures and suggest adjustments for the following round. However, many futures efforts have been wasted as when a report is printed the team is disbanded and the further debate and development do not take place. That was the fate of the Commission for the Future, which was disbanded in 1982 as the work was beginning to come together.

The warning of the irrelevance of many methodologies such as those developed at the Rand Corporation for the USA military has been confirmed by further experience. Complex and technical game playing (including the Delphi process) may seem impressive and indicative of high-level expertise, but most often proves useless in practice. “The skills required are those of organising groups of people, of organising extensive inputs of information and identifying key factors.”

Work on values and goals continued within the Commission for the Future. A series of 58 workshops organised by invited groups (and thus not representative of the whole population) provided an overall consensus (with, naturally, a number of differences of opinion) for assistance to community development and increased participatory democracy. [Zebke and Robinson 1979] Indeed I found the depth of disquiet and the strength of many of the opinions in their outspoken condemnation of current society quite surprising.

That analysis can now be seen to have contained two basic defects. There was insufficient appreciation of the extent of the paradigm shift implied in moving to greater community concern and action. And there was no appreciation of the strength of the backlash to such ideas, which had included the recognition of limits to growth and a desire to adjust towards a steady-state economy. The focus had been on desires, opportunities and options for the future. None of the resultant pictures foresaw what has happened since, with an explosion of inequality and centralised power rather than a leisure society, with unemployment and stress rather than a shorter working week.

Scenarios have been each too cohesive, too coherent, too one-dimensional, and thus lacking an appreciation of the struggles among the conflicting, coexisting ideologies that are locked in a never-ending battle for dominance in the real world.

A Commission for the Future discussion paper providing a simple overview of the visions of the future world presented by OECD Interfutures raised my own concern with the strength of centre-periphery relationships (where a periphery nation such as New Zealand was largely controlled by powerful central forces) and the suggestion of joining with the non-aligned movement in aiming for increased regionalisation and control of resources, against the growing globalisation. [Robinson 1979b]

The country was then well into a significant demographic shift, as fertility rates dropped from the very high levels of the post-war bubble. While Statistics New Zealand forecasts had previously followed a reassertion of those high birth rates, an appreciation of the social changes taking place, including the desire of many women to enter the work force, suggested that the birth rate would most likely continue dropping to around replacement levels, and that the population might then stabilise at around 3.5 million – assuming no overall migration. The possibility was for a stabilising population; the possible stable population was not a prediction, but rather an if-then estimate. [Robinson 1977a]

Calculations of the possible dependency ratio – of the number of dependents (non-employed in the formal economy, in all age groups) to dependents – in a Commission for the Future discussion paper [Robinson 1980b] included the considerable change in dependency in the working age bracket as many women moved from dependency (as dependent housewives) to join the work force, with smaller (or no) families, and making full use of modern equipment that had removed much of the drudgery from home care. The change from the then growing and youthful population to a possible stable population could mean an increase in the work force from 39% of the total population to 53%, with a decrease in dependency from over 1.5 dependents per worker to around 0.8 dependents per worker. Those estimates assumed that employment opportunities would be available, with a need in the private and public sectors for the greater supply of workers, and thus low unemployment. At the same time the promise of new technologies was for greater efficiency, to do more with fewer employees, so the way was open for a considerably decreased work week and greater leisure, and a spread of effort into social spheres. The alternative was unemployment and anomie – which is what we now have. Certainly the demands of an aging population could be readily satisfied; this just asks for a redirection of effort. The insistence on spending no more on care for older people, which dominates the public discussion, fails to recognise the huge savings to society elsewhere as the many requirements of a growing population, for new infrastructure as well as direct care, disappear.

Other studies dealt with other questions raised in the debate, steadily building knowledge across a range of topics through a number of studies, or briefs, that together informed the complete holistic picture. Since a major criticism of the concept of limits was the belief that growth was essential for the solution of the problem of inequalities, that issue had to be considered. A number of historical accounts showed that, most often, the very opposite trend is observed, with growth associated with increasing inequality – there has been no equalisation of wealth but rather a redistribution in the opposite direction. [Robinson 1976c] Remember that this was in 1976, before the policies of the Lange-Douglas government (copying Thatcher and Reagan) brought a considerable increase in inequality to New Zealand after 1984.

“The no-growth argument is an appeal for readjusting the composition and distribution of economic output. The pro-growth argument is an attempt to postpone this readjustment; to confer it on future generations. Simultaneously this approach ensures that those generations will have fewer real choices to make.” [Meadows et al 1973]

An extensive study had concluded that no definite link could be established between economic growth and political freedom. [Adelman 1977. This is quoted in Robinson 1989, page 88.] The conclusion was that “for equitable growth, at each stage of the development process, access to the critical factor of production should be redistributed before its productivity is increased.” This demands redistribution before growth, not growth with trickle down at some later date.

The New Zealand Club of Rome, formed in 1976, decided that its first project would be a study of the New Zealand contribution towards a solution of the world food problem. [Robinson J L 1981a] The choice of topic was influenced by New Zealand’s position as a food exporter, and by the recognition that while “food and water shortages are not the only major problems identified by the future projections, they are the only points on which the various researchers are in agreement.” The conclusion pointed to a modest but useful contribution.

“Our small country of 3.2 million could provide: 10 percent of cereal equivalent needed to fill the forecast shortfalls in the developing world, provided New Zealand meat exports can be used to free cereal from animal feed in developed countries in an international cooperative venture, and most, if not all of the milk products required to supplement the diets of the most malnourished people.”

One suggested action was to:

“Play a more active and positive role in the ongoing efforts to reform the international economic order, to provide guaranteed prices for third world production.”

Subsequent action has moved in the opposite direction, with New Zealand wheat production replaced by imports from Australia and globalisation bringing the instability of a free market rather than guaranteed prices.

Experiments using global models also continued. A number of studies, including at OECD Interfutures, at the East-West Center in Hawaii, and my own reports back from Europe, identified SARUM (the Systems Analysis Research Unit (UK Department of the Environment) Model) as the best of a number of global models. A version that had been extended to add Australia and New Zealand as separate regions to the basic twelve regions was run at the Victoria University Department of Information Science for the Commission for the Future.

A number of model experiments provided information on the probable consequences of specific changes to either global trends or to national policy, each following changes to just one key parameter. [Robinson 1981b and 1981c] That procedure followed that of the Systems Analysis Research Unit in their work, and differed from that of OECD Interfutures where scenarios required simultaneous alterations in many parameters, thus confusing the influence of the various changes and providing no clear information.

In one model experiment an increase in energy prices leads to a considerable increase in the trading deficit. The devaluation of the currency that follows makes imported energy still more expensive in national currency. Following damage to New Zealand’s customers, they decrease their purchases. On the global scale, a number of devaluations and reductions in production “suggest a serious downturn in economic activity or onset of a world-wide depression”. Such financial collapse did indeed follow the 2008 boom and bust of oil prices. While the increase in oil prices was one factor amongst many, I believe that it was significant, the ‘straw that broke the camels back’.

A second experiment assuming changes in trading policy identified consequences that were later experienced.

“The principal effect brought about by changes in New Zealand trading policy, within a model which follows comparative advantage in an otherwise free-trade system, is to shift economic activity between sectors. The agricultural sector in New Zealand has an international comparative

advantage, and grows in a situation of increasing trade, while local manufactured goods are replaced by imports. Conversely, the manufacturing sector grows if protected by trade biases.

Globally, a move towards more trade is of greatest advantage to the developed nations, while increases in trade barriers permit developing nations to protect and encourage their manufacturing capabilities.”

I was in Europe during much of the time between 1978 and 1984, as a consequence of turmoil in my personal life. Despite the disruption to my professional life, these periods provided opportunities to extend my studies in futures research – of methodologies, of major research projects and of analyses of long-term trends and expectations.

I visited groups at universities, in government departments and non-government organisations (NGOs), as well as individuals who formed an informal invisible college; most were aware of one another and frequently in contact, sharing information and debating issues. Living in crowded cities, the problems had been apparent for some time – some French long term planning had formed as a consequence of the events of 1968 when student demonstrations had shut down the country and toppled President De Gaulle. In addition to those I was able to visit, I was told of similar groups elsewhere, such as the Spanish Instituto Nacional de Prospección and the International Institute for Applied Systems Analysis (IIASA) in Austria, which held meetings across Europe. The need to ask where civilisation was heading was recognised by this sizeable minority of thinkers, and support was forthcoming from both governments and international institutions. “There is a general appreciation that the world is in a critical situation and that alternative scenarios need to be formulated as a direct aid to government action.” [Robinson 1978a] For a while, this was a growth industry.

A first port of call was to Futuribles in Paris, where Hugh de Jouvenel helped with advice and contacts, and outlined their three-year programme on social indicators. I soon heard of the new OECD futures project, Interfutures, and the OECD Social Indicators Programme, and I would work with both in the coming year. I found a diversity of views concerning how best to tackle the challenge. Wilfred Lewis at the OECD Prevision and Evaluation group advised that:

“To be successful and effective, planners must not be isolated from politicians, and must define problems which can be dealt with successfully by politicians. French planning has (in the view of Mr Lewis) had very little effect as it lays no part in the key budget process. There is a need to define the points of public policy impact.”

This pointed to a basic problem of ‘thinking outside the square’. Influence with decision-makers depends on meeting within their space, accepting their worldview and ideology. Yet thinking long term leads away from that common ground.

Jacques Durand at the Délégué à l’Aménagement du Territoire et à l’Action Regionale (DATAR) told how futures research had begun in 1968 when the crisis across France had shown the need to look at the long term consequences of the ensemble of policies. This was carried out by the Système d’Études du Schéma d’Aménagement de la France (SESAME). A first effort with a large organisation of around 100 people concentrated on technological problems, with model development emphasising programming and computing, was abandoned after three years as it was too expensive and lacked concrete results. They were taking years to build models, and internal politics and jealousy of independence within the seven different groups involved opened wide gaps. The concept of multidisciplinary work (meetings of, say, six people, each expert in their own discipline) was replaced by an interdisciplinary approach where each person had to understand all facets of the work, and work was then guided by a group of six people. SESAME concentrated on socio-economic problems, and it was recognised that a conflict will always exist between the

practical and the theoretical parts of the work. Other groups in France benefitted from that experience.

High on the list of concerns for the future were the international economic crisis (this “had commenced with the problems of the US dollar in 1971” and was “a durable crisis, and it will last into the 1980s”) and conflicts between quality of life and ecological concerns (“After the present period of exasperation, a more complete understanding may be forthcoming”). Durand was also pessimistic about the risk of war.

The work at DATAR had continued for a sufficient period to allow a later consideration of forecasts, asking whether the predictions had proved robust and what could be learned. An early analysis was dubbed a “scenario of the unacceptable”.

“The continuing move towards regionalisation tends to strengthen those regions that are already strong, since investments remain in those regions, multinationals continue to invest in those regions, and because such regions are well situated, principally around the borders of France.”

This forecast was revisited seven years later. There had been some reaction to the growing regional differences such as aid to the west of France, which was becoming a deprived region. A major point concerned the assumptions of such a forecast.

“The external forces have not been constant. There has been, amongst other things, the energy crisis and the continuing crisis in the Western economic system. It is now recognized that interactions with a changing external world must be included as an essential part of any scenario.”

While these two points – of the need to return later to forecasts, and the essential inclusion of global trends – would seem obvious, they have been repeatedly ignored in a considerable number of one-off projects.

Some of the scenario work was written in the form of a historical simulation, an overly discursive approach that limits its usefulness as it takes a slow, and repeated, reading to find any key message. In any case a set of discrete events in an imagined future is certain to be inaccurate, and moves from science to crystal ball gazing.

Bernard Cazes of the Commissariat General du Plan, where there were three people working together on long-term planning, was uncertain of the usefulness of the DATAR Scenario work. Their experience pointed again to the need for carefully organised teams: the initial arrangement, whereby groups (of 12-15 people, even 30-40 for transport) were formed for individual projects and then disbanded, was not satisfactory as there was no continuity. However an informal group of high-level civil servants, meeting every two months to discuss which topics of long-term concern should be researched, had “a happy conjunction of motivation and influence”.

“In order to gain impact a channel of communication is needed or nothing will happen. An ‘invisible college’ is clearly needed. Futurology is often caught in an establishment/radical dichotomy. People working in the field must be aware of the two currents – one supporting, the other attacking, the status quo.”

Another French planning group, the Groupe de Réflexion sur les Stratégies Industrielles (GRESI), “had produced documents on the petrol crisis, big German industries and the form of French society following the international change (the latter being political and secret).”

In addition to those interviews at Government departments, I attended a number of seminars and round table discussions in Paris, and interviewed many key figures, including Alexander King (OECD and Club of Rome), Phillipe de Seynes (UNITAR) and Ignacy Sachs (UNITAR Program on the Future).

In England I found that “the limitations of large-scale computer modelling are widely recognised”.

“The Mesarovic-Pestel model [reported in the second report to the Club of Rome, Mesarovic and Pestel 1974] has not been opened to a proper scientific scrutiny. An Interfutures team which examined the model found a number of inconsistencies, and I have heard several stories which indicate possible dishonesty on the part of the organisers.”

Such reports deepened my suspicions with Mesarovic formed during his visit to New Zealand, and my concern that a complex model, while extremely useful if clear, well presented and carefully used, could act as confusing black box and even as a propaganda tool. A number of English studies at universities and government departments had similarly concluded that “it would not be cost-effective to invest large resources in a modelling project.”

“In general models should be reasonably simple; there are declining returns as complexity is increased past a certain point. The dream of playing with and learning from world models is unreal; since decision makers will want to be guided by advice that they understand, and ‘black box’ models contain many key assumptions.”

A contradiction here is that decision makers will accept anything that suits their purposes, whether they understand it or not. The aim of much readily accepted ‘analysis’ is to prop up the status quo, aimed at propaganda and selling policy rather than for understanding. A black box can suit those purposes perfectly, being so complicated and opaque as to be beyond understanding and criticism. The process is then to ‘blind them with science.’

The team who developed the SARUM global model at the Systems Analysis Research Unit had carried out careful model experiments, investigating discrete policy changes by altering just one key parameter at a time. The implications for policy development could then be clearly described.

The need to form a permanent team was again emphasised: “the optimal size of a futures teams is between 6 and 12 members”. “The background of the personnel will have a strong influence on the approach of the group” and “all futures work is guided by the world view of the proponents”. Indeed, political differences among participants in some work at the University of Sussex Systems Policy Research Unit (SPRU) had led to some conflict in the previous year. Ian Miles had found that Kuhn’s description of paradigms in scientific thinking provided useful guidance. [Kuhn 1968] This brought the appreciation that science, like any other thinking, builds and largely operates within a ‘conventional wisdom’ that is open to challenge during a period of tension as very different concepts are debated until the facts insist on a change in some basic concept – such as from the movement of the sun round the earth and from the manufacture of all life by a deity some few thousands of years ago. Members of SPRU were highly critical of the concept of limits to growth, with some curious results. For example, a suggestion that the limits to many resources are approaching was dismissed since lower grades of ore can always be mined (including a calculation by William Page of the amount of tin in the earth’s mantle). The conclusion failed to appreciate the considerable increase in energy required.

I continued to hear of other futures work, such as IIASA meetings and a UNITAR project, “The role of technology in national development and North-South relations” that hoped to integrate a socio-political analysis with an analysis of economic variables derived from a macro-economic model. In addition to the official groups (many not mentioned here), interviews introduced a wide range of concern and further sources of information. These included Edward Goldsmith of The Ecologist, Lord Kennet who had carried out a study Europe plus thirty with Alexander King, James Robertson with the Turning Point network and Michael Williamson with the Futures network.

The principal concerns for each country were related to history and geographical position. The Swedish concern was with adapting to the new international economic order – particularly since a clash between idealism and national self-interest was probable.

An awareness of the need to consider the future had commenced in Sweden some time before, with debates and proposals for futures research in the 1960s. Some of the first work was in the military – similar to the defence-oriented think tanks in the USA such as the Rand Corporation and Hudson Institute. There was a similar interest from the French military, and later around 2000 in New Zealand I found that the Defence Force was carrying out the only sensible recent futures analysis. But then, in war lives depend on seeing the reality rather than getting lost in ideological spin.

The Stockholm International Peace Research Institute (SIPRI), which is independent and worked closely with both sides of the Cold War (East and West), reported an extensive collation of military activities across the world in its Yearbook. They were pessimistic as far as disarmament was concerned, and noted the vast usage of resources in the arms industry. The USA was clearly the major exporter of arms and had taken part in more international conflicts since 1945 than any other nation.

As elsewhere, there was considerable political influence in the initial running of the Swedish Secretariat for Future Studies. One reaction was the formation of a separate institute, the Swedish Association of Future Studies, by the Royal Swedish Academy of Engineering Sciences. I was later to notice how frequently an unwanted opinion would be dismissed as ‘biased’, without considering the evidence, when some worldview differed from that of a more powerful control agent. Different and independent organisations are essential for research into long-term trends. The several efforts in Sweden had been well supported. Thus when the Academy needed a headquarters, the King found that he had a spare palace, which became their very pleasant working place.

Many of the major themes from interviews in France and England were repeated in Sweden and Holland. The ideal size of the group is 3-7 professionals (each with broad multidisciplinary skills), supported by 2-4 secretarial staff. “The duty is to collect a sensible group of people of different scientific and political biases and to allow them freedom to do as they wish.” There were also further warnings of the usefulness of the Mesarovic-Pestel model as it was narrow in its outlook, and there were doubts regarding the model.

In Sweden, the “considerable and favourable impact of the work of the Secretariat” was thought to be “largely due to the excellent presentation, in concise and clearly written documents”. The Academy developed a business-as-usual scenario, with other scenarios to examine divergent trends and to sketch alternate pictures. I was reaching that conclusion myself. A diverse group of complicated alternatives lacking any judgement on which was the most probable produced only confusion. Professor Thoenes in Holland thought that the scenario analysis of their Scientific Council for Government Policy was messy.

Thoenes made similar comments on the scenario work at OECD Interfutures. I had been told in Sweden that the dominating figures in Interfutures were (1) Professor Lesourne, an economist by training who had been director of a consulting firm, SEMA, that did market research and a vice chairman of IIASA as a specialist in systems analysis, and (2) a German economist Professor Michalski who had expressed strong criticisms of the UNCTAD Common Fund proposals. The other two deputy directors were Professor Branson (USA) who was concentrating on his own work and Professor Kogane (Japan) who was quiet and had difficulty in pushing his own point of view. Thus an economic point of view dominated, with no even discussion of different points of view; all countries were advised to “refrain from any sort of unnecessary protectionism”. The project considered the current economic difficulties in the west as part of a cyclical pattern rather than as requiring a restructuring of the economic system.

These reports of many interviews identified a considerable effort to examine long-term trends across France, England, Sweden and Holland, together with references to similar work in many other countries and international organisations. Much of the advice was consistent. The work

should be carried out by small (around 6) independent teams. There was no reference to imaginative methodologies beloved of some futures theorists, such as Delphi. Computer models had a lot to offer but could be misleading, so should be used wisely and the output read with caution. The worldview of the team and the controlling client could be determinant and must be recognised. Political differences can cause problems to team building. Worldviews, paradigms, politics and religion may be major factors in determining scenario analyses.

Most significantly, the existence of a long term economic cycle with an end to a growth phase around 1970, and the resultant need for a fundamental change in economic organisation, was frequently mentioned in interviews yet absent from most publications, with many scenarios containing an implicit assumption of continuation or re-established growth with little change.

Many of the identified faults were evident in the OECD Interfutures, where I next worked. This created problems for me. This was a prestigious project and it would look good on my CV, but the work was poor.

Global models, including SARUM, were used to supposedly validate scenarios. There was never any test in model experiments of the consequences of policy, but rather an insistence that changes in many parameters (including growth forced by technological advances) must result in a fit to presupposed pictures and provide the expected outcomes. The set of six scenarios thus cobbled together ranged widely, resulting in a confused mess of alternatives that provided no guidance of what the future might be. The underlying ethos was of conservative economics. Thus self-sufficiency and protectionism was linked to slower growth as trade flows were destabilised. [OECD Interfutures]

There was an impressive collection of background papers. I found confirmation of the concept of long waves in economies, as the growth period of 1945 to 1970 had resulted in overproduction in many major sectors, such as synthetic textile fibres, chemicals, steel production, shipbuilding, diesel engine manufacture, electronics and automobiles. But such thinking was not part of the process, and all that information was passed by. The failure to address the limits to growth resulted in the unsupported claim that “economic growth may continue during the next half-century in all the countries of the world without encountering insurmountable long-term physical limits at the global level.” The time scale here to 2029 was just prior to the widely forecast crunch point range, after which the global limits would be most strongly experienced. This is a common trick, to refer to a time range that stops short of a crunch, and suggesting therefore that there is nothing to worry about.

Junior staff members played little part in the development of the project. I did however decide to write of some of my concerns to the Director, Jacques Lesourne.

“I enclose a few comments on the first draft of the main issues paper, as requested in your memo of 6th June.

The premises of the study – indicating the *raison d'être* of the INTERFUTURES project and similarly of the recent rapid growth of futures research as a subject – need clarification. The entire analysis, and the approach followed obviously depend very heavily on the reasons why the work is undertaken, on the aims of the project, and on the requirements of the client to whom the work is addressed.

My comments on this paper can be centered on the first two of the phenomena noted in paragraph 3(i).

The first point from the main issues paper is that ‘The interdependence between problems is quickly increasing at the world level’. This is a statement of a systems behaviour which must be considered carefully. One of the interdependencies noted is the synchronisation of economic fluctuations. If

this is indeed an increasingly important factor in the development of the world (or Western) system, then careful consideration must be given as to how to react to this. More cooperation or greater interdependence may simply increase the problem by providing positive feedback to the cause of the problem. A desire for a greater diversity, or lack of synchronisation, may then be an appropriate response. The concept of diversity is well known to ecologists. A diverse system consisting of many interacting parts is usually more stable than a simple system dominated by a few actors. A continuing, or increasing, diversity in human society, including a continuing role for the 150 independent governments noted in paragraph 3(ii), could then be expected to provide a more stable basis than an over-centralised or overly dependent system.

The implications of this possibility for the OECD and for INTERFUTURES are considerable. Two very different policy directions are indicated:

that of consciously increased linkages, hopefully under some control

and that of decreased linkages (which may imply greater international cooperation) in order to build more diversity and stability into the international system.

The second alternative is related to the concept of self-reliance, and to the dismantling of the present center-periphery structure.

While I agree with the statement of the first phenomenon, being of the opinion that the consequences should be more fully considered, I am in disagreement with the statement of the second phenomenon.

The second statement is that 'the scale and the speed of change of human activities are augmenting'. The example of population growth cited provides a clear contrary example, for in the West zero population growth may be a reality in the near future, while in the South birth rates are now beginning to decline.

The crisis, and the feeling of unease concerning the future, is a phenomenon of the 1970s, with its beginnings in the late 1960s. The uncertainty of future prospects, which has led to the setting up of projects such as INTERFUTURES in order to provide some guidance of possible future developments, was first fueled by studies such as *The Limits to Growth*, but more strongly affected by the faltering of the Western economic system. There has been a definite decrease in the speed of change of many human activities – including employment opportunities, and technological change. We are evidently in a transition period, from a period of rapid economic growth to a possibly more stable and more satisfying system.

The system within which we live was successful during the period of the 1950s and 1960s because it was a system which was adapted to, and which depended on, rapid and continuing change. For some reason, possibly the end of a period of rapid technological change – initially fed by the scientific advances of the late 19th and early 20th centuries as well as the developments during World War II – possibly the end of a period of cheap energy, the machine has slowed down. And being so dependent on growth, the system is in danger of failing altogether – failing in the necessity to adapt to a more stable situation, as population, energy use, economic output, etc. tend to stabilise.

It is obvious that this part of the analysis has a considerable effect on all of the subsequent analysis. If, as INTERFUTURES documents seem to suggest, growth and change continue today, and are seen as positive in their effects, efforts must be made to support the machine which, after a few hiccoughs, will continue in to the future as it has in the past. If, however, we must adapt from a period of rapid change to a more steady (i.e. slowly changing) situation, there will be a need to examine closely more radical alternatives.

The work of INTERFUTURES fails to consider any alternative which implies any basic change in the system. In particular, the term 'structural change' needs to be clearly defined so that the reader understands the implication of the term and its relevance to a possible change in values.

I hope that this brief discussion of these points may aid the work of the INTERFUTURES project.” [Robinson 1978b]

Interfutures was too big for group cohesion, with control by a board made up of representatives of the participating countries. There was no questioning of the ideology implicit within OECD (which had previously concerned Alexander King). Much of my learning from that experience was how not to carry out futures research.

Several months with the EOCD Social Indicators Programme emphasised the uselessness of any one collective measure of wellbeing. Much information is lost in building a new parameter of uncertain meaning, with the choice of weighting guided by the judgement and worldview of the analysts. Rather, a key group of straightforward indicators, which together can provide an overview of a social situation, were chosen sensibly by discussion among experts who were familiar with trends and correlations. That was the approach that I took later in my consideration of the Maori social experience and Maori futures.

The Tenth Anniversary meeting of the Club of Rome in 1978, which I attended as the New Zealand representative, brought me in contact with many prominent figures – the foremost being H King Hubbert who had correctly forecast the 1971 peak in USA oil production in 1956, and who had been pilloried for the suggestion. Two features were the lionising of Robert Maxwell who was promising to set up an information system and journal for the many Club branches (nothing happened) and the assertion by Aurelio Peccei that we had just ten years to save the world. Peccei was treading the familiar path of excessive optimism and hoping for the best; the opportunity for decisive action had been open in 1968, but by 1978 it was already too late. That hopeful 'ten years to save the world' is still found today, while becoming even more wide of the mark as the years have passed.

Studies have shown that one of the main features of successful research is serendipity, readiness to take a punt. That can apply to individual actions as well as to group organisation. That principle has aided me on a number of occasions, as when I found myself out of work in Paris. A colleague from Interfutures told me that the Assistant Director-General for Studies and Programming of UNESCO, Jean Knapp, had been very interested in the project, and suggested that I approach him. He was twice unavailable, but she pushed me into a third attempt. He was free just at that time, so I took a quick Metro trip across Paris and we agreed on the first of four contracts, a report on global models. 'Invisible colleges' do work. My major problem later was isolation in New Zealand as thinking long term became unfashionable; there were then no such linkages and support.

Apart from the relatively straightforward one-world model of The limits to growth, the many global models that I considered (Mesarovic-Pestel, Leontief, Bariloche, Fuji, SARUM, UNITAR) were highly complex – and studies making use of these of models, such as Interfutures, could be difficult to unravel.

“The development of a global model is a large-scale and expensive operation. Insofar as the tool utilised, a complicated and expensive high-technology computer, has an influence on the project ('the medium is the message'), global modelling will reflect the thinking of the high technology school.” [Robinson 1979d]

There was a general acceptance in the models considered of the 'global problematique' as defined by the Club of Rome – a “tangle of apparently disparate problems which include poverty, environmental depredations, inflation, loss of faith in institutions and the rejection of traditional values”. While there was a wide range of future possibilities, a major concern in most was with

problems of food and population in Asia. Not all issues were (or could be) included in the modelling; a list of twelve topics not treated included power and multinationals, the economic crisis, post-industrial society, and a historical overview.

The next report, written from my home in the small rural town of Martinborough, New Zealand, dealt with some social and historical issues that cannot be dealt with in a mathematical model. When I was asked by Knapp to consider culture, society and self-reliance, I wanted to earn the fee but had no idea how to approach such an extensive topic. So I signed the offered contract and spent the first of the six weeks available in the garden, mulling it over. That period of reflection, akin to a long individual brainstorming session, was guided by my studies of scientific discovery, and my own personal experiences, pointing to the essential value of letting the subconscious get to work without too much interruption. It worked. My hidden man is far more intelligent than I am.

A base was provided by a review of human needs, and here I was fortunate to interview Professor K W Newell who had been working with the World Health Organisation (WHO). The WHO emphasis on primary health care “shaped around the life patterns of the population it should serve” supported a focus on community self-reliance. Changing social patterns included those within the family, where the spread of modern household appliances and smaller family sizes were redefining the role of women from the traditional world of housework, shopping, cooking and childcare towards participation in the formal workforce.

The wide-ranging discussion then covered topics such as financial flows including aid, path of development, and the activities of multinationals and international banks. This resulted in support for self-reliance and the UNCTAD Common Fund. Awareness of global issues in the changing world might then be increased within national planning by small teams of perhaps three persons from UNESCO who would work with a similar small group from a developing country to a period of about two years. [Robinson 1980a]

Back in Paris in 1981, discussion at UNESCO was largely focused on ‘interdisciplinarity’ and intersectoral analyses’. I followed a previous report that differentiated between multidisciplinary, crossdisciplinary and interdisciplinary studies. A multidisciplinary study implies the meeting of people, each expert in his own discipline, each working within the axiomatics of that discipline – with no real connection across disciplinary boundaries. In a crossdisciplinary study there is a rigid polarisation towards a specific monodisciplinary concept, with the work carried out within the axiomatics and perspective of that one particular discipline. An interdisciplinary study must be truly holistic, moving across the various contributing disciplines to reach common ground. That is not possible when each participant stays in an isolated world defined by past training, or when the interaction takes places within any one such world. Since most often the full answer to a problem lies outside of the sphere of interest legitimised by a particular discipline, it is important to escape any such boundaries and to consider a problem in its entirety. Each person taking part in an interdisciplinary study must then be able to build a comprehensive approach. This would require a considerable effort by UNESCO. [Robinson 1981d, and Robinson 1989, page 29] However, no such effort was intended and the concept was stillborn. This was another experience with buzzword planning, which involves multiple repetition of some key phrase but no concrete action. A further report on the organisation of a programme of reflection on world problems suffered the same fate. [Robinson 1982a]

Such studies involve many physical measures, which can be included in global models, and the consideration of historical and social issues. While both quantitative and qualitative elements are essential to the whole picture, they can be difficult to combine. A conceptual study, asking whether socio-cultural variables might be included in modelling reached a negative conclusion overall. A few social indicator measures could be followed but it “is necessary to refute over-stated claims for

global models” and social and historical issues can only be dealt with “in a wider context, set within a comprehensive research project”. [Robinson 1982b]

UNESCO brought together experts from many countries to consider how to deal more with social issues in planning, and I edited the report of one such meeting. The settings, the processes as well as the aims, were readily seen to be highly dependent on local conditions and cultures. Papers from such diverse areas as French Sahel and English Tanzania, from Peru and India showed the influence of former colonial powers. It was evident that planning methods and policies “must be adjusted to, and appropriate to, various stages of development”. This calls for a balanced approach with an appreciation of both the importance of physical measures and of the dangers of too great a dependency on number crunching. [Robinson 1983a and Robinson 1983b]

A study of the most effective management of research units similarly spanned many countries. Here the general conclusions were clear and universal, including the need for effective leadership and group cohesiveness. Since the evolution of research efforts spanned a number of years, and the resultant output would only be apparent towards the end of the period – to be followed by adjustments and further development – it was advisable to continue this study for a further period. [Robinson 1982c]

There have been a number of such studies of the organisation of research, such as that reported in 1998 by the Division of Science Resource Studies of the USA National Science Foundation. Their set of guidelines for the evaluation of scientific programs, which were based on source material from many sources, including national surveys of college graduates and Census data, were for the most part similar to those identified in the UNESCO study. In particular, the NSF report noted that it is most often impossible to predetermine the outcome of any research project. [Barr 1998, with reference to National Science Foundation 1998] The importance of the independence and self-governance of research organisations was emphasised throughout these studies, an approach that had been followed across the British Commonwealth in 1920s, and later destroyed in New Zealand in 1992.

The accumulation of reports and formal debate was earnest and useful. Yet the most striking forecasts came when a group sat in a Paris café chatting, taking time out and speaking off the record, informally brainstorming. Some of the ideas were off the radar in 1983, yet were to come to pass in the following decades. One expected the collapse of the USSR and its European outliers, just as every other empire in history has been brought down by tensions between the central control and the colonies. This had nothing to do with communism, but came from with the recognition that all empires have a finite life. The other was the realisation that the division of the world into rich and poor, developed and under-developed, was largely between Christian former colonial powers and Muslim dependencies. That division of much of the world into rich/powerful/Christian and poor/dominated/Islam could then evolve into a struggle of civilisations. While the world is complex, and other factors certainly came into play, both proved accurate. So often what appears at first appearance as a most outrageous idea is on reflection seen to be very sensible. That experience added to my appreciation of brainstorming and thinking outside the square of permitted thought. Another key has been is the need to recognise what is before your very eyes, as features of so many major global trends have been widely reported.

This invisible college was a key feature of holistic futures work, combining information from so many sources on so many topics. Such informal discussions allowed the sharing of judgements on the validity of the masses of information coming from key international organisations, which were gathering, analysing and presenting information from many sources across the world. Any one person cannot know everything about such immense data collation and presentation systems, and it is important to understand who is professional and can be trusted, and whether an organisation is producing a directed and biased picture. There was general agreement, a consensus on the value of

information from a number of official sources. Global population estimates were clearly produced, and the various global models and forecasting exercises could use the base calculation with a confidence that has been proven since. Food forecasts from the Food and Agriculture Organisation (FAO) were overly optimistic, but their low estimates provided a good guide. The International Energy Agency (IEA) has always been a booster for growth without limit, and their forecasts have been simply wrong.

Discussions of the organization of futures research and the combination of socio-cultural factors with computer models continued at the Blue Plan at Sophia Antipolis (inland from Nice). [Robinson 1983c] This United Nations Environment Programme (UNEP) study of the ecological, economic and socio-cultural future of the Mediterranean basin brought together representatives from a very diverse group of nations. Early work had produced useful results, such as the key importance of the German economy in supporting tourism on the coast of Yugoslavia and Greece. The illegal movement of refugees was also becoming a worry.

A simple approach was advisable – making use of existing models for guidance but not building their own, which would take up more resources than were available and produce an uncertain output. Some of the advice received caused me headaches, such as a complicated and useless paper on groups from a very friendly professor at Aix-en-Provence (the visit to talk with him was most pleasant). [Robinson 1984] This is a constant danger of interdisciplinary work, to be overwhelmed by an arcane, specialised presentation that is so far outside one's expertise that it is difficult to either understand or to critique. I had met just such a case at the OECD Social Indicators Programme. When my colleagues were bemused by a mathematical presentation (matrix diagonalisation and definition of eigenvalues and eigenvectors), I was able to point out that this was basic masters-level mathematics and not particularly relevant or useful. It is always important to refuse to take on board any concept that is not well understood; otherwise you find yourself paddling up some very queer creeks.

Later in New Zealand I found a worse misuse of mathematics. A complex body of statistics describing a number of variables (health, education, income and similar measurements for example) may be analysed through a procedure – readily available to run on a computer – that will provide an estimation of the relative importance of causal factors. This process is valid if and only if the causal factors form a set of independent variables – that there is no connection between them. Then the relative importance of the causal factors in defining the behaviour of a dependence variable (the result) can be understood. The basic, required condition is not met in many social sciences. Yet that modelling has been widely used, in one case applied to ethnic statistics to test whether they can be explained by common experiences or whether there is some identifiable racist element. The various measures failed to give a 100% fit, as was to be expected as the conditions on which the mathematics was based were not met. However, the residue was labelled 'Maoriness' and considered as if it had some meaning. In the USA a similar meaningless residue is even called 'racism'. Colleagues at Applied Mathematics Division have since told me that they often had disagreements with Treasury officials who insisted on using the process (it was available and looked good) for a variety of calculations even though the first page of any basic text set down necessary preconditions that were not met. This is a power game. The ignorant are easily led by the nose once unwanted expertise is sidelined.

A 1983 United Nations University conference in Paris on Energy and agriculture: their interacting futures; policy implications of global models [Levy and Robinson 1984] was followed by a project using three different computer models – SARUM (Systems Analysis Research Unit Model, mentioned previously, run by Kim Parker), UNITAR (developed by Sam Cole for a United Nations Institute for Trade and Development study on technology, distribution and North-South relations) and UNITAD (developed by Jacques Royer; the name is a contraction of UNIDO (United Nations

Industrial Development Organization) and UNCTAD (United Nations Conference on Trade and Development)) – with myself as organiser and R Jackson assisting with data availability. [Cole et al 1984] The several acronyms for various interested groups illustrate the considerable effort being put into global concerns and, in particular, into the construction and use of large models. The use of these existing, complementary models was fruitful. The output was, however, rather detailed and complex, of greater use to the expert than to the general public.

A parallel non-model adversity scenario brought in some factors that were not within the ambit of the models. One issue involved possible changes in weather patterns, which were seen to be unstable. There was some uncertainty at that time as to whether the slight cooling since 1945 would deepen, or whether there would be global warming due to increases in atmospheric carbon dioxide. Any change, either cooling or warming, would upset the forecasts. Another concerned the differences between prominent analysts. The United Nations Food and Agriculture Organisation based forecasts on a period of rapid productivity increase, and assumed that there would be no limits to the continuation of those trends, ignoring the limits to water availability and the occasional crippling drought. [FAO 1981] Lester Brown described limits to food production, including salinisation and desertification, and a steady decrease of arable land per capita [Brown 1978] – a decrease also noted in the FAO report, but the FAO hoped for further large increases in productivity to make up the shortfall.

After 1984 I settled back in New Zealand. I had served my apprenticeship and was well schooled in the methods and findings of futures research. But by then the Commission for the Future had been disbanded and I found no interest in thinking ahead. The knowledge that I had gained was unwanted, as it has been ever since.

I had developed the idea of an improved version of the Mediterranean Blue Plan for the Pacific, which I called “Reflections on the South Pacific” (ROSP). A first project on interactions between economic development in the South Pacific, for the UNESCO International Fund for the Promotion of Culture, had been agreed to in Paris. While this was successfully completed, there was no follow-up. Further funding was dependent on support from New Zealand, which was not forthcoming. While I was in Paris I could knock on doors and take on contract work, but agencies such as UNESCO demanded national support for overseas contracts and Pacific island governments looked for a firm base and recognition in the home country. Through the years I have often wondered how much of my lack of success is due to personal failings. I will never know, and it might not be so; I was not well placed, as I belonged to no institution, and the concept just did not fit the times. After all, I had done well enough in Europe, knocking on doors, gaining employment and building a set of contractual ties.

A desire to explore the total picture, and in particular the cultural implications of development and new technology, was reflected in many of the publications of the Institute of Pacific Studies at the University of the South Pacific.

“There appears to be considerable scope for international planning on a Pacific regional basis” [Yen in Ward and Proctor 1980]

“A third major problem encountered in the preparation of DP4 was the absence of a clearly formulated framework. ... Without some clarification of these and related issues, the formulation of a development plan confined to a limited time frame is apt to be both hazardous and misleading. The problem remains, and presents a case for the formulation of a long-term Perspective Plan for the country laying out the development options, scenarios and possibilities over a period of fifteen to twenty years.” [Fairburn 1985]

Reflections on the South Pacific was designed to fill that gap.

“Our vision is of a small and permanent multicultural and interdisciplinary group which can carry out this integrative task for all of these organisations, with funding of some part of the work by each. It is surely more effective and efficient to combine to meet a common objective.” [Robinson 1986a]

The output of the first stage was a report on the experiences and concerns of Niue Island migrants in New Zealand [Robinson 1985], a central report, including reference to many discussions during a visit to a number of islands countries (Niue, New Caledonia, Vanuatu, Fiji, Tonga, Western Samoa, American Samoa and Cook Islands) [Robinson 1986a], and a handbook on interdisciplinary methods. [Robinson 1986b]

The analysis commenced with an overview of this particular region. The various islands scattered across the vast ocean were formed many millions of years ago. Larger land masses (Papua New Guinea, New Zealand, New Caledonia) are fragments of ancient continent. Medium size islands (Fiji, Solomon Islands, Vanuatu, Tonga, Mariana Islands, Samoa) are volcanic, formed over subduction zones. Small volcanic islands (Cook Island, French Polynesia), coral atolls (Marshall Islands, Tokelau islands, Kiribati, Tuvalu) and an isolated plateau (Niue) had formed over hot spots in the earth's crust. Soil fertility, and distribution of minerals, vary widely.

The biota is determined by the ancient geological story. Thus New Zealand, having broken away from Australia before the evolution of marsupials, has been largely colonised by birds. That then was the environment and the resources, available to the peoples who came to settle those lands.

“The Australoid peoples moved through the Melanesian island arc to reach New Caledonia possibly between 5,000 and 11,000 BC (these dates are not universally accepted). By 2,000 BC some Mongoloid peoples had begun to spread from Indonesia into Melanesia. Fiji and the main islands of West Polynesia were settled about 1500 BC by these peoples, who were probably ancestral to modern Polynesians. There were in some cases mingling of races and cultures as the various movements took place. Micronesia was settled from about 1500 BC by Mongoloid people who moved up from Melanesia. There is much uncertainty concerning the settlement dates for much of Micronesia. After 1000 AD Yap and the string of western Caroline Islands, running for 1100 km east to Namonuito were combined into an extensive system which has been referred to as a ‘Yapese Empire’.

Between 1500 BC and 500 BC Melanesian Lapita ware pottery spread from the Admiralty Islands off the north coast of Papua New Guinea, south to New Caledonia and east to Fiji, Tonga and Samoa. The foundations of the Polynesian heritage was formed in this region in the period about 2,000 years ago, as the culture evolved from the parent forms. ... after Western Polynesia had been settled for about 1,500 years, and a distinctive culture had developed, migrations to the east took the Polynesians to the Marquesas in about 300 AD, and to the Society Islands, Easter Island and Hawaii by about 500-600 AD. At a time when the Vikings were commencing their westward moves across the cold north Atlantic, the Polynesians moved into the temperate zone of New Zealand in about 800-900 AD.” [Robinson 1986a, with reference to Allen et al 1977]

While some of those estimated dates would be challenged today, the overall picture is clear.

Many of that first wave of immigrants lost all contact with the Eurasian landmass. The culture they inherited and brought with them was pre-iron age, predating the evolution of cities and modern civilisation. The coming of Europeans was then a massive culture shock. Here were new, advanced technologies, more powerful weapons and a much changed way of looking at the world, with new religions and political forms. While some colonial actions were disruptive, the eighteenth century European enlightenment brought an end to slavery and a belief in equality of all peoples. Subsequent developments depended on whether a place was colonised, and on the various ideas and actions of the colonial powers (Dutch, Spanish, Portuguese, British, German or American). The

considerable mix of forms of government ranged widely: military dictatorship in Irian Jaya, monarchy in Tonga, overseas territory of France, unincorporated territory of the USA, trust territory administered by the USA, parliamentary democracy in the British Commonwealth, self-governing in free association with New Zealand. The period of colonisation was ending and self-governance had either come or was demanded.

A centuries-long paradigm shift and culture change has been playing out. Many old ways, such as cannibalism and intertribal warfare are thankfully gone. Other cultural practices, which have been under threat in the great transformation, are highly valued and efforts continued to protect such treasures of the traditional way of life. In New Zealand, while the period as a colony brought considerable benefits to Maori, the stresses of culture change and the forceful reassertion of old ways broke the peace and set the scene for today's ongoing racial tensions. [Robinson 2012]

Two major themes of this book are appearing here – culture change and the domination of a central authority. From the fifteenth century on, circumstances for the then Pacific people changed out of all recognition, forcing, and demanding, a paradigm shift, an enormous and fundamental change of culture. There have been major tensions with changes of governance and thus of power structures. Some Maori chiefs welcomed equality and peace after 1840; others wished to hold on to their privileges, to continue with fighting and even in some cases to retain slaves. In our times the growing number of Fijian Indians and their influence in a democracy has become a challenge to the Council of Chiefs. One of the reactions in Fiji (not welcomed by all traditional chiefs) has been a military coup.

Change was essential, and difficult. So it is today, as the very limits of the capacity of this earth to support human activities have been reached, and are being exceeded. The change may have been difficult then, but is proving impossible today. The evolution of cultures in the Pacific spanned centuries; there is no such time available to adjust to the global crisis.

The power of the second wave of immigrants had proved decisive, and the influence of those central nations in a periphery region was evident late in the twentieth century. Now, on the global scale, the power of the military-industrial-financial complex controls and blocks any proactive thinking – and can be expected to dominate through the crisis.

Some peoples find themselves still caught up in cultural tensions. The Niuean community in New Zealand felt “caught up in a cultural vacuum, halfway between their traditional culture and the dominant European culture of New Zealand. ... It is believed that the European civilisation is puzzling to many people across the Pacific.” [Robinson 1985] That sense of imbalance was frequently mentioned.

“The strength and value of the traditional arts is contrasted with a general sense of cultural unease and, at times, a sense of alienation from both traditional culture and the new modern western culture.” [Robinson 1986a]

Tribal sharing required any earned income to be treated as belonging to the group, and for any housing to be available for all. This created problems for some successful individuals whose promotion resulted in relatives moving in; there are serious tensions between individual advancement and communal habits.

“The extended family brings tensions and pressures. Capable, qualified people can find pressures too great and give it all in. The family is good for the old and the young, but the one who succeeds must carry the rest. Also it is necessary to return favours, and this is difficult if you are not successful; and ‘what is mine is yours’, so the family may move in with a successful person. As people go overseas the extended family is starting to break down, and there are some destitute people and lonely old folks.”

The traditional arts were more alive and appreciated since many Pacific Countries gained their independence, with new museums and cultural centres throughout the region, and many nation festivals of the arts. The impact of cultural activities in raising awareness of cultural and political matters was significant.

“The festival (Melanesia 2000) organised in 1975 by Mr J M Tjibaou (now Chief Minister of New Caledonia) and himself a sociologist and Mayor of Hienghene, came as a shock to many non-Melanesians who had assumed that Melanesian Culture had virtually disappeared. It was the turning point for Kanaks. The claims on former land, though latent, were awaiting their opportunities.” [Crocombe 1975]

Tjibaou repeated that story to me when I met him. Many of the poems in publications available at the University of the South Pacific dwelt on the problems of developing counties, with the false picture of tropical paradise, and often with scorn towards the emergent public service, which was felt to be acting just like the previous colonial administration.

“There are no islands in the sun.
Only a stony-eyed boy asking,
‘Hey mister, you got five cent?’
... in this conditioned office
on a swivel chair and farted air
i batten on – a civil servant –
defined, secure in a sinecure.”

The considerable social impact of new technology, as identified in a series of fourteen interviews in New Zealand with experts in the field, was emphasised.

“The potential for the use of new technologies in Pacific Islands is considerable, as are the dangers. One terminal can bring a full set of banking services to a small island community, provided there is sufficient use to pay for the investment. It seems that the Islands should react to the suggestion for planning in a cultural setting by a collective response, as the expertise involved cannot be provided by small communities.”

Because of different forms of land ownership, banks needed to go beyond pure development funding. (I was later to learn the importance of disagreements among Maori concerning traditional land ownership rights, which proved a defining factor in setting off rebellion and war in Taranaki in 1860.[Robinson 2012]) As new technology was introduced in banking and telecommunications, the initial use of technical staff from the central country was being replaced by locals. Thus experts in American Samoa were often contract employees from the USA. In the Cook Islands the number of expatriates had reduced from five to two, following training of national staff – although many able people had left in a brain drain. The telecommunications office in Noumea had 10 technicians from France and 230 locals, with training courses for local staff. Tonga was on the threshold of large-scale computer use in both government and banks, and the Fiji government had set up a committee to oversee the introduction of computers.

Over a relaxed lunch, French technicians recognised that the manner of introduction and use of communications technology was highly political, and involved control over new media. New centre-periphery relations were developing within the framework of neo-colonialism, with the growth of multinational and transnational corporations since the mid-1960s. Some felt that cooperation among the small states of the South Pacific, and forward planning, were urgently needed if protection was to be offered to the best features of traditional cultures, and if the introduction of new technology was to proceed in an orderly manner.

The connection of Noumea to France had both positive and negative features. Television linkages were to Paris rather than across the region, so that a metropolitan politician (Chirac) was seen often

on television while a local leader (Tjibaou) never appeared. This was a common complaint across the region. Australian TV magnate Packer was aiming to spread across the islands, and Australian commercial interest were successful in Fiji. In American Samoa programmes came – complete with advertisements – on video from Hawaii, played one week late.

However, since overseas territories were considered a part of France, they benefited from national policies, and were the first countries in the region (including New Zealand) to have computers provided to every school.

There were also provisions of equipment in United States dependencies. As a result of an initiative from the president's wife, Lady Bird Johnson, television had been provided in schools in American Samoa in the 1960s. After the initial wave of experts from the USA had come and gone, the equipment lay unused until local educators developed a system suited to their needs. [Schramm et al 1981] While this proved a success, there was a greater impact from popular television where children and adults watched USA programmes. A new satellite for the region was expected to further spread programmes from outside the region across all the islands.

The formerly isolated islands had been swept into the global world.

“Thus gradually over the centuries the South Pacific became part of the greater world, and in the 20th century has become involved in the two world wars and the two major global depressions. Independence came to those colonies which had come under the control of the United Kingdom, Australia and New Zealand, following events in India and the ‘winds of change’ that swept across Africa. But to others this peripheral region has been seen as part of a global chain of military bases and as the flank of the northern Pacific whose economic might is to make the 21st century ‘the century of the Pacific’.

The French are struggling to control a potentially explosive situation in New Caledonia, which may soon become the Northern Ireland of the South Pacific, and the USA has forced Belau into referendum after referendum in an effort to change its nuclear free constitution. The islands of the South Pacific have been used time and again for the testing of armaments; missiles and nuclear bombs have been tested in our region, far from the homelands of the major military powers. The influx of money to pay off displaced peoples and to purchase military bases has caused deep cultural malaise [as in the Marshall Islands]. ...

Regional organisations have been formed to provide forums for interchange of information and improved organisations. The South Pacific Forum, with its Secretariat the South Pacific Bureau for Economic Cooperation (headquarters in Fiji), groups the independent and self-governing territories. The South Pacific Commission (Secretariat in New Caledonia) was formed in 1947 by the countries with territories in the region, and has since been joined by several independent states. The University of the South Pacific was set up in 1967 in Fiji to serve the Pacific region. There are other regional organisations linking churches, business, the arts and other sectors of activity.”

There were questions as to whether island economies could support a consumer lifestyle. Aid flows were (and are) considerable, and a debate continued on the very possibility of viable economies being established on groups of widely dispersed islands, and on the lifestyles that can be supported in the future. Many if the islands were not, and are not, sustainable as independent economies. Many Pacific island nations live with a so-called MIRAB economy, that is, an economy dependent on migration, remittances, foreign aid, and government bureaucracy as its major sources of revenue. [Bertram and Watters 1985]

I met many examples of inappropriate planning methods. The most striking was in Tonga where a senior planner told how they could readily construct a plan to develop a successful economy in just ten years. However, that plan ignored the tropical hurricanes that came on average each five years, bringing widespread destruction and disruption

There was widespread awareness of the failings of those external experts, often acting for influential international agencies, who flew in for a few short weeks to provide advice without any recognition of local conditions. I had been suspicious of religious groups, yet met a number of such voluntary workers who had a long-term commitment, had been living in the islands for years, and had a deep love for the region and knowledge of the special conditions of small islands, and in particular of coral atolls. One story was told repeatedly, of how 'modern' toilets fed sewage (previously disposed into the sea) into the soil groundwater and polluted ground water lenses, the only source of fresh water. That had happened previously, was still happening in 1985, and continued in 2011 when a graphic account of overcrowding and pollution in Tuvalu was described by a New Zealand NGO representative (from '350') who refused to recognise the inevitable impact of so many decades of overpopulation. Who is most to blame: the people who do these things, or the people who think they know better and 'advise' them wrongly so that basic issues are swept under the carpet?

The question of population growth, and movements of people, was clear. Populations continued (and continue now) to grow, and while many stayed to add to crowding of the islands, the surplus has moved away to other countries. One popular channel was to American Samoa and thence to the USA – which provides some explanation for the popularity of the Mormon Church. However overpopulation was, and is, a political hot potato and those movements were largely ignored in official circles. This upset my prospects for ongoing work when an Australian candidate for a United Nations position, who had agreed to consider my project proposal seriously if appointed, was bypassed for an islands candidate who had no interest in population.

At that time, in 1986, different scientists were pointing to very different trends in weather patterns.

"We are now in a time of considerable uncertainty. Some measures show the possibility of another ice age forming in the coming century. Other measures point to a quite opposite trend, with a similar time scale for substantial change. The activities of man are increasing the amount of carbon dioxide in the atmosphere, which can lead to a warming of the earth through the green-house effect. Should the melting of confining ice allow much of the Antarctic Ice Sheet to slide into the ocean, the sea level may rise by about 5 m, flooding much low-lying land."

However by 1990 a warming trend had become established and there was increasing concern with possible sea level rise. But proposals for studies of socio-economic impacts of climate change across the Pacific unfortunately fell into an expertise trap. There was no funding for overview projects, where I had expertise. Funding was for narrowly defined disciplinary work, where I had insufficient expertise. That trap is a constant barrier to genuine holistic research since narrow expertise only is valued.

I survived with a series of studies of Maori futures, gathering statistics to present a unified picture and dealing with the likely consequences of some rather persistent social gaps, despite a previous period of improvement for Maori and convergence with the experiences of other New Zealanders.

I remained fascinated with global developments, and convinced that coming to grips with the 'global problematic' was the major scientific task of the day. It was during that period that I came to the realisation that I was on my own so far as further long term forecasting was concerned. This even extended to brainstorming, where I found it possible to let my thoughts range widely and seek for interconnections and otherwise ignored factors, as a one-person think tank.

The aim became to define one most probable forecast, rejecting the building of sets of alternative possibilities in scenarios, which had proved to be confusing. The world is made up of many divergent forces and does not act in uniformity within any one paradigm. Nor will this complex reality change to follow any selected, or preferred, paradigm. The decision to follow existing trends out into the future soon became the major assumption of my forecast, and was self-inclusive, both

an assumption guiding the forecast and a central part of the forecast: there will be no change but continuation towards the crisis suggested by the mass of futures analyses. The overwhelming reaction to any such suggestion, as observed during the decade of the 1980s and as even more evident later in 2012, is denial and a refusal of any serious consideration of global issues, or of any adequate action. That forecast was never what I desired, not a hopeful wish list. This was to be an exercise in reality – driven by neither the pessimism with which I was charged, nor the optimism of the critics who could not accept the magnitude of the coming changes.

That robust forecast could have provided the setting for many group or sectional long-range planning efforts, which could then have been normative and consider how best to face the challenges and improve the continuation forecast. Each group could then imagine and plan its preferred future – while keeping within the bounds of what is possible.

The scope of the forecast, and the range of sectors, issues and trends to be taken into account was all-inclusive – including social issues, environment, resources, economics and politics. Information on many aspects was available from a multiplicity of sources, from global models to oil peak estimates and warnings of increasing numbers of possible species extinctions. There remained several key gaps filled in. Research into economics of the long term and the form of the forecast collapse (from the pre-shocks, some of which had already occurred, to the consequences of war and centuries-log disruption), as reported in the following chapters, became part of the unified forecast.

As that approach moved away from the futures mainstream, I was increasingly following the spirit of *The limits to growth* standard run, and guided by the basic principles of science. As time passed, a clearly defined forecast was built up, which could be put to the scientific test, to be either falsified or proven to be robust and a suitable guide for action.

* * * * *

Chapter: Independent science

My aim was then to build a unified picture of the coming half-century, and beyond, for a highly complex civilisation. That is a huge task, bringing together and making judgements on the considerable range of issues that together combine to determine events across the entire world – you need all the help you can get. Here the scientific method is key; science provides a way of sorting out what is real, of understanding what is happening, and of solving problems. It works by following a clear process, analysing real-world data, building a cohesive picture, making a forecast based firmly on that reality and – most importantly – putting the forecast to the test. Those forecasts that fail can then be rejected. Those that pass can remain as robust pictures of existing reality and guidelines for further action. The process is quite feasible for long-term forecasts; time does pass, and by 2012 forty years had passed since the publication of *The limits to growth* and that long past upsurge of awareness and concern.

The basic feature of a scientific hypothesis is that it can be tested. While passing a test does not mean that the hypothesis must be the only explanation of the facts, it does mean that it is consistent with the facts and meanwhile any alternative that fails miserably can be rejected, so that the range of possible explanations is thereby steadily whittled down. For that to be possible, the theory must be formulated clearly, with a forecast that may be found to be either true or false. The demand is that “a statement should be falsifiable” and the practical aim of experiments “must be to falsify a theory (or better, one of two alternative theories)”. [Bronowski 1977, pages 82 and 84] In the case of the forecasts that interest us here, the test is some expected happening or trend rather than an

experiment. In either case, an observed event will either display the expected features or may differ sufficiently to disprove the theory.

The process may not support accepted ideas or the conventional wisdom of the day. The growth of scientific knowledge, based on the accumulation of observations, occurs through “the repeated overthrow of scientific theories and their replacement by better and more satisfactory ones.” [Bronowski 1977, page 94, quoting Popper 1959] The replacement of accepted dogma is a fundamental issue for any science that makes a challenge to the status quo, whether considering motion round the sun at the time of Galileo, evolution of species in nineteenth century Britain or the limits of a finite world in today’s growth-fixated society. The opposition is usually vigorous.

A long-term forecast of a significant event some years in the future can be tested in the interim by considering whether trends are following the prescribed paths. Here the theory is not able to be proved, but might be shown to be false should events move away from the forecast path. The thesis of global limits with a potential collapse can be tested against trends in the almost 40 years since it was formulated; thus far there has been no conflict, while a number of alternative optimistic hypotheses have fallen by the wayside.

Forecasting requires consideration of a considerable range of information from many disciplines, which combine and interact. Holistic science, knitting together many diverse strands, is an act of creation and, like all scientific work, “that creation exists in finding unity, finding likenesses, finding pattern”. [Bronowski 1977, page 17] The pattern to be sought in a real-world forecast requires consideration of a vast diversity of contributory elements and a good understanding of many disciplines in a genuine interdisciplinary analysis. The holistic scholar must refuse to remain trapped within disciplinary boundaries, and must be ready to question accepted concepts should they prove false (as is often the case, particularly in economics). Faced with the great diversity, and confusion, among conventional and radical thinkers, the futures forecaster must make judgements, with choice based on reasoning and facts. “The man who proposes a theory makes a choice ... The creative activity of science lies here, in the process of induction understood as the making of hypothetical theories”. [Bronowski 1977, page 10] In the case of the forecasts that interest us here, one major step is to include some very obvious premises in the analysis: that the earth is finite, that human activities have grown sufficiently that a number of limits may be approaching, that a successful economy might not be growing – and, indeed, that economic growth may be harmful – and build from there.

In this process, all available information sources should be considered. The wisdom of past generations must be recognised and taken into account, as should the subsequent advances in science. The motto of the secondary school that I attended, Avondale College, is ‘kohia nga taikaka’, ‘to collect the heartwood’, which I take to mean to strive after the best things in life and to take constructive information from each information source, while recognising any deficiency. It is foolish to judge today’s scholarship because a former thinker could not get everything right. An example is the concern with population numbers, first raised centuries ago by Thomas Malthus who, obviously, could not rely on today’s global institutions and computers.

“The year 1982 marks the 300th anniversary of the publication of an essay containing the first trace of a global population projection. Between then and the middle of the twentieth century, global projections consisted of extrapolations of total population numbers, the growth rates being established by the author’s perception of past trends and of conditions that shape population growth. The second half of the twentieth century has witnessed the evolution of global component projections. Component in two senses: demographic components – fertility, mortality and age structure – and countries and regions as components with diverse types of population growth that are aggregated into global projections. The development of these projections has been closely linked to progress in the sciences, natural and social, to refinements of demographic methods, and

to improvements in the availability of population data around the world. This paper will present a brief overview of the history of world population projections. In a closing section some speculations are offered about the general logic and significance of this human endeavor.” [Frejka 1981]

That search for truth requires “independence, in observation and hence in thought”, calling for dissent, which is not welcome in the non-scientific world but is supposed to be demanded in science. “Independence of mind and reasoned dissent in speech are virtues in the world of science, though in many polite circles they would be regarded as vices.” The mark of independence is originality, and one of its expressions is dissent, which “in turn is the mark of freedom. ... An age of reason may be anxious to persuade the unreasonable – and independent minds are always unreasonable – but it must be more anxious to ensure that they are not browbeaten.” [Bronowski 1977, pages 209, 210 and 215]

There is here a conflict of two paths of logic and reasonable behaviour. One logic seeks understanding and the truth. A second logic considers how best to advance in a personal career path. To follow the first is to question many features of conventional wisdom, such as growth, free trade and capitalism itself. The consequences of that path are to threaten position and promotion. The second is followed by the great majority and provides a comfortable life; it is easier to live with a loss of integrity, a turn away from a search for the truth, than a loss of employment. Only those free from a desire to belong to the herd can reach for the stars and cry out that ‘the emperor has no clothes’.

“We are all in the gutter, but some of us are looking at the stars.” [G B Shaw 1892, Lady Windermere’s fan]

How should science be organised to guarantee the requisite freedom of thought and expression? The answer is to place science firmly in the hands of scientists. “Evidently the choice of priorities in research should not be left in the hands of governments.” The proper establishment of science then requires “demand for a single national grant which is then allocated by the scientific community itself.” This “will compel the scientific community to assign its own priorities and divide the overall grant at its disposal accordingly.” [Bronowski 1977, pages 245 and 246]

This is the ‘Haldane Principle’, calling for the separation of research from administrative departmental control, that guided the early 1920s formation of scientific establishments across the Commonwealth, including the highly successful DSIR in New Zealand. [Galbreath 1998, page 27]

Subsequent research, including the UNESCO programme that I reviewed, has shown the value of such decentralised organisation.

“The autonomy of the research group in decisions concerning the actual research process is essential for all types of effectiveness. When expectations focus on scientific goals, scientists are apparently best left alone. There is then a limit to the extent to which upper level management should plan and control research activities.” [Robinson 1982b, UNESCO 1981]

Such autonomy is particularly important in today’s world with much scientific research providing a damning critique of the current growth paradigm, to which government is wedded. In New Zealand the requirements of science are no longer met. There have been huge changes since I commenced within the DSIR and, since science advances by the dissent of independent minds, true science – independent and critical – is not possible in current New Zealand where a bureaucratic monster, directed by the politics of the day, holds the purse strings.

In 1992 the then Minister, Maurice Williamson, announced the destruction of the DSIR and the imposition of a government-controlled business model. The unified scientific establishment was to go and science made accountable to its political masters.

“Well the old DSIR was an appallingly old sort of soviet-style bloc that had less accountability in management than anything I’ve ever seen. I think the new crown research institutes, which have to bid for their money, along with private sector research people, and along with universities, are the way to go. The really important point is the government has made so much more money available in the science envelope. Every year it’s gone up, in the 97/98 year it went up by another forty-five million. We’ve got an increase again of ten million in the budget for next year. The science envelope’s now over six hundred million of money we are making available for research in science. What we’re not saying, though, is that that’s all going to go to an old government monolith like the DSIR used to be.”

The science establishment, which had been largely science-controlled while operating within a framework set by government, had been successful. Once again a basic rule of government, ‘don’t fix it if it’s not broke’ was tossed aside in the service of ideology.

The DSIR was formed in 1926 following discussions among British Empire dominions, Australia, Canada, New Zealand and South Africa, with supportive funding from the British Government. The Permanent Secretary was Ernest Marsden, a physicist who had studied under Rutherford at the University of Manchester. The DSIR proved capable of reacting to changing challenges, with new divisions forming and evolving as required. Some highlights in its long, proud history are the overcoming of mineral deficiencies by adding cobalt to soils (which opened up considerable areas to agriculture), the breeding of strains of more productive strains of wheat, dairy research, solution of problems with the production of steel from ironsands, development of radar both before and during World War II, sending physicists to join in the Allied wartime nuclear programme, gaining an understanding of faults and earthquakes (including developing devices to dampen shocks) and much else besides. [Galbreath 1998]

The DSIR was highly effective and provided an excellent return on the investment in science. As well as providing returns of around 30% on specified long-term tasks such as the solution of agricultural problems, new ideas could be explored and often were encouraged and helped to fruition. There was no reason other than an extreme ideology to break up the DSIR and organise science into competing business units (beholden to a centralised monolithic funding system), which are unsuitable for the scientific endeavour. Science and business are two very different arenas with different criteria and requirements. In each the best result comes from leaving decisions to the practitioners who know their subject.

This successful and well proven organisation, which had served the country so well for over 65 years, was replaced in 1992 by the Ministry of for Research, Science and Technology (MRST) and the Foundation for Research, Science and Technology (FRST, a ‘Crown Entity’) with the stated mission of “investing for results from research, science and technology to deliver greater prosperity, security and opportunities to all New Zealanders”. A complicated funding system was put in place, dividing funds between competing agencies, including universities and Crown Research Institutes (CRIs, business units that competed for available funds). Decisions on the expenditure were taken from scientists and placed in the hands of politicians and bureaucrats who had no understanding of science. That unwieldy centralised funding structure destroyed the scientific endeavour, and was wasteful in many ways.

A considerable amount of the time of scientists (estimates are in the 30% to 50% range) was taken with funding applications rather than research.

Around 89% of applications failed and much of the effort put into those applications was wasted.

Funding uncertainties and strange decisions limited and disrupted science. Projects which take some time to carry out may stop midway and linked projects may fail when a significant stage is not funded (scientists interviewed told of such experiences).

The future of CRIs was uncertain, and some have gone. Without the larger organisation there was no certain career structure (previously provided within the DSIR).

Many scientists were very unhappy. It is hard to do good science when your job is uncertain, and many left.

The efforts of CRI managers were focussed on funding rather than on research.

The divided structure acted to prevent rather than encourage serendipity and interdisciplinary interaction.

The divided structure did not allow for the development of new disciplines. This is of particular importance at the present, when a comprehensive understanding of multiple interrelated global shocks demands a fully committed integrated effort.

The MRST/FRST structure, including the extensive funding rounds, was expensive and wasteful. That money could be better spent on science.

Some of the comments on websites were both sad and biting.

“Working at a CRI has sometimes been a bit like those post-apocalypse movies, where rag-clad scavengers pick through the ruins of a once-mighty civilization. Elderly scientists collar you in corridors to reminisce about golden days when the DSIR was at the height of its powers. Beautifully-constructed machinery lies gathering cobwebs; useless because the calibration records end abruptly on 30th June 1992, the day the DSIR was disbanded. ... And, of course, the vast quantity of time spent writing proposals is in no way a guarantee of funding. The scientist must employ telepathy to work out what FRST will fund at any given moment. FRST have become renowned for making the sort of capricious and unfathomable decisions which are normally associated with crazed North Korean dictators.”

These two agencies, MRST and FRST, were replaced in 2011 by the Ministry of Science and Innovation. Its key roles and functions included: advising the government on New Zealand's science and innovation system, overseeing the Government's investment in science and innovation, and an infrastructure that supports science and innovation and fostering commercialisation and the transfer of knowledge into technology, processes and products; enhancing productivity; and, through the application of research results and innovative effort, achieving wider benefits for New Zealand.

This was required to follow a business-oriented economic-growth mandate.

“New Zealand is a smart nation with unrealised potential, and key to our future prosperity and wellbeing is a high performing science and innovation sector. MSI has an ambitious mandate to transform New Zealand by driving science and innovation to increase our economic, environmental and social performance. We will do this through our strategic leadership and by partnering with the science and innovation sector and through the networks we build across government, research organisations, business and industry.” [Ministry of Science and Innovation website]

Such talk of innovation is foolish, as the effort at directed innovation actually kills innovation by removing the very conditions that foster questioning, explorative science. Science, which should be a celebration of the human spirit and a vital part of the culture, has become a cog in the machine of profit generation.

The last nail in the coffin of what remained of New Zealand science came in 2012 with the formation of a ‘super ministry’, merging the Ministry of Science and Innovation with the Ministry of Economic Development, the Department of Labour and the Department of Building and Housing. The intention to control and direct science, at the services of business interests, was clear. Steven Joyce, the senior Cabinet Minister in charge of the new Ministry of Business, Innovation

and Employment said the ministry would help drive the Government's business growth agenda and make it easier for businesses to engage with the Government. Prime Minister John Key echoed those sentiments. "This new department will help to drive the Government's priority of building a more productive and competitive economy. ... It will strengthen the public service's ability to work on business policy, regulation and engagement, so the Government will get a much more co-ordinated and focused resource."

For the first time since 1925, New Zealand did not have a government department with 'science' or 'research' in its name. While there were far more important issues at stake than the naming of a ministry, the response from the scientific establishment as represented by the Royal Society of New Zealand concerned the title only and failed to deal with the destruction of the scientific enterprise with the direction of what was left in the service of business growth.

"The Royal Society of New Zealand notes with concern the absence of the word 'Science' or 'Research' in the title of the proposed new super-ministry ... Undoubtedly, science and research are very important to New Zealand in stimulating innovation & wealth creation. There are, however, many other reasons for the public investment in research, including protecting public health, sustaining land-based industries, managing our natural resources and informing evidence based policy. While the new title may not matter in terms of the operation of the new Ministry, in a small jurisdiction like New Zealand, the absence of the word 'science' could send an unfortunate signal giving the impression that science and research may somehow be overlooked. We believe that this would definitely adversely affect the morale of our scientists. The omission of 'science' or 'research' from the title of the new Ministry could also influence social capital and investment flows. It removes from centre stage some of New Zealand's most innovative activity and its competitive edge in a globalising knowledge economy as well as possibly making it harder to engage in science and research circles internationally and diplomatically." [Royal Society of New Zealand 2012]

This is a little squeak from a pathetic, captive mouse. The RSNZ is held captive, dependent on its funder and control agent, central government. That was the response given me when in July 2012 I suggested that the Nelson Science Society ask the RSNZ to set up an independent think tank to consider global issues, arising from a talk on *The limits to growth* – 40 years later. My audience pointed out that any such approach would be a wasted effort. The freedom basic to science is gone and the RSNZ obeys its master, just like a mob of sheep driven by men and their dogs. Without genuine futures thinking, there is no invisible college here, such as provided by the many useful contacts I found across Europe. Any suggestion of a study of global issues is rejected, as peer review is guided by a narrow current orthodoxy that follows instructions for growth 'innovation'. Those 'peers' and time-serving conformists. That blockage and protection for controlling interests is ubiquitous. Papers on the keystone of science and the need for holistic consideration of a threatened world have been turned down by the Journal of the Royal Society of New Zealand and the New Zealand Science Review (journal of the New Zealand Association of Scientists). A paper on Maori demography that challenged the false claim that Maori population decline in the nineteenth century was forced by British colonisation rather than the Maori intertribal warfare of the 1820s was turned down by the New Zealand Population Review as that analysis challenged the work of Ian Pool, a major figure in the Demographic Society.

The destruction of science and the subservience of the Royal Society are representative of similar changes across all aspects of New Zealand governance. The destruction of integrity, of the pure enjoyment of life in free scientific endeavour and in seeking solutions to problems, and of the satisfaction of doing good and honest work, all have gone. Members of Parliament, councillors and other decision-makers are dependent on information provided. But having killed the source, the goose that laid the golden eggs, they do not get the required advice. The failure of integrity is

widespread; the following examples come from my own direct personal experience. I am sure that such experiences are found across the developed world, and that the running of my local community and this small nation are all too typical.

The Energy Efficiency and Conservation Authority (EECA, the organisation set up by the New Zealand Government to encourage, support and promote energy efficiency, energy conservation, and the use of renewable sources of energy) has a close relationship with the motor trade. EECA works with the Motor Industry Association, Independent Motor Vehicle Dealers' Association, Motor Trade Association, Automobile Association and individual vehicle manufacturers and traders. Gold sponsors are Nissan and Meridian, Silver sponsors include Honda. The EECA 2010 Biofuels & Electric Vehicles Conference subtitled "growing the market" included sales pitches by Nissan, Mitsubishi, Toyota and Meridian Energy. They, like other Government departments, rely on incorrect oil resource forecasts from the International Energy Agency (IEA). [Robinson 2011a]

Transport New Zealand produces annual forecasts that have been demonstrably wrong for the past six years. These are based on a Delphi exercise carried out by industry representatives that only reflects the interests of those organizations. Since the result is supportive of more funding to tourism, the process goes on.

A whole industry has built up from the gravy train of Treaty of Waitangi claims by Maori tribes, until the history of New Zealand has become distorted to forget past advances and to produce grievance, together with race-based claims on the rivers and seas, the air and the water. That divided nation was never the intention of the Treaty of Waitangi with Governor Hobson's proud declaration: "Now we are one people." Biased versions of the past are rewarded while critics are attacked and sidelined. [Robinson 2011b and Robinson 2012]

Academics studying climate change present a dire picture but refuse to discuss the lack of action. Indeed I have been told most forcefully by a prominent climate scientist to go away and stop suggesting that they do something.

Back in Martinborough there was burning of in an open pit, with the public (including children) coming to the edge to throw in rubbish. Indeed a workman had been burnt badly when his truck backed too far. There were no safety measures, and a small hose stopped well short of the pit. That was illegal, dangerous and environmentally harmful. Yet Council turned a blind eye until I stormed angrily into their offices promising publicity if this did not stop. I was very unpopular, the only one to criticise that illegal and dangerous situation..

There was considerable public opposition against Wellington City Council support for the construction of a large aquarium at Te Raekaihau Point on the rocky south coast. When I spoke to council I made reference to a report to the council that raised serious questions concerning the economic viability of that venture. To my surprise, several councillors asked me where they could get copies of the report, which had obviously been kept from them by council staff.

That council evidently operates in a thoroughly unprofessional manner. For around twelve years a foul stench had been blowing across several suburbs from the southern landfill, where sewage was added to green material to produce compost by a company, Living Earth. It was evident that the stench would be been stronger at source and that council staff knew what the problem was. Yet they pleaded ignorance and refused action until two angry public meetings and a well-signed petition forced their hand. Living Earth was then shut down – and now the sewage is buried in the landfill. Just a few miles along the coast noxious waste has been leaching from an old tip for around fifty years and out of a drain at Houghton Bay onto a swimming beach in a marine reserve. Just as before, complaints bounce about between the City and Regional Councils as they play pass the parcel and nothing is done. Everywhere the lack of professional integrity, forced by a tightly controlled commercial model of government (both local and central), is harming people and the

environment. The vertical integration of the oligarchy and the subservience of supposed experts is evident from the international level right down to the local community.

The only push for the recognition of problems – and the solution of problems – comes now from outside the establishment. This is true for the health of a local beach or of the air we breathe, as it is for the fate of our society and the world we leave for future generations. It was not always so.

Now science is dead and the guardian Royal Society a collaborator in its demise. A major point here is that critical examination of the global problematique is thus suppressed. Two other points to be emphasised are:

Science is a pinnacle of human achievement, an ultimate expression of the human spirit, and a source of immense satisfaction for anyone allowed to follow a problem to its resolution. The search for the truth by a scientist is as much as to celebrate – and to permit – as the desire for excellence of an athlete, a musician or a writer.

Predetermined research, where the final output must be guaranteed in advance at the service of a client, fails. The goal of directed innovation cannot be achieved.

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Chapter: Economic cycles and excess capital

A considerable body of useful information is ignored by orthodoxy. Most economists (a group with pre-eminent power in the world of liberal capitalism) reject any ideas that challenge their theories – and the interests of their clients – and refuse to consider the theory of long economic cycles, which identify fundamental flaws and recurring instability in an uncontrolled free-market. They claim that such theories are impossible. I was even told by a professor, head of a university Economics Department, that they could not teach the ideas described here as the graduates would then not find ready employment. They teach what the business community wants to hear, and not the truth. This is despite the success of that theory, which, in a form developed in 1925, forecast the previous great depression that commenced with the stock market crash of 1929. An understanding of the repeated patterns and common causes will help towards an appreciation of the current worldwide economic disarray and provide guidance of what is to come.

A variety of causes for economic growth are evident. These include new technology, increased demand (after wartime destruction in 1945), political domination, competitive advantage, and the opening up of new markets. When a product or service is needed or desired, and can be afforded, there will be a market and entrepreneurs can profit by satisfaction of demand.

But why should boom be followed by bust as in 1929 and 2008? Why should an apparently healthy economy collapse? This is the key question. After all, such economic downturns have been frequently observed. If decision makers could get to grips with the causes, they might be able to prevent any further collapse and develop a more stable economic system.

The greatest historian of the twentieth century, Fernand Braudel, has provided a magisterial overview of the history of the last half-millennium based on detailed research, and described “the mysterious realm of higher finance” in a system where:

“an ancient and progressive division of labour led to the necessary separations of encounters which nourished active and conscious everyday economic life with its small profits, its micro-capitalism (whose face was not unacceptable) barely distinguishable from ordinary work. Higher still, on the

top floor, we have placed real capitalism, with its mighty networks, its operations which already seemed diabolical to common mortals.” [Braudel 1981b]

Braudel identified a series of economic fluctuations, with peaks followed by downturns over periods of around 50 years, through the fifteenth to the seventeenth century. [Braudel 1972 and Braudel 1981a]

“Economic historians are more or less in agreement concerning the following medium-term fluctuations between a series of low points: 1460, 1509, 1539, 1575, 1621 – and peaks: 1483, 1529, 1595, 1650, dates which are accurate to within a year or so. This gives us four successive waves, each with its rise and fall, the first lasting 49 years, the second 30, the third 36 and the last 46.” [Bruckmann G, The long-wave debate, in Bianchi et al 1983]

Further such economic cycles have been identified from the late eighteenth century to the mid twentieth century. A Russian economist Nikolai Kondratieff (also written Kondratiev; head of the Konjunktur Institute in Moscow) was the first to bring these observations to international attention in 1925. [Kondratiev 1925] The data used covered roughly the previous 150 years. The cycles identified, with continuation to recent times, are: (upswing) 1782-1825, (downswing) 1845, (upswing) 1845-1872, (downswing) 1872-1892, (upswing) 1892-1929, (downswing) 1929-1948, (upswing) 1948-1973. [van Duijn J J, Comments on topics 1 and 5, in Bianchi et al 1983]

Others had noted the long economic cycles.

“The pioneers of the older generation had been Parvus, Van Gelderen, Pareto, De Wolff, and finally Kondratieff, who was the first to attempt to base long-wave theory upon empirical data, and whose name is, ever since, associated with any analysis of economic movements with a life-span of forty to sixty years (Kondratieff cycles). Kondratieff concluded that such long-term cycles are characteristic of the whole of capitalist economies, as a result of differing phases of capital accumulation.” [Bruckmann, 1983]

Unfortunately his understanding clashed with the policies of Stalin, and Kondratieff was sent to a prison camp and later shot. The consequences of conflict with power were horrifically drastic there, making today's rejection appear nothing worse than benign neglect. Any concentration of power is harmful, whether by a dictatorship then in the USSR or by the military-industrial-financial complex now in control across the capitalist world. Later, Joseph Schumpeter [Schumpeter 1939] suggested naming the long economic cycles as “Kondratieff waves” in his honor.

Kondratieff identified three phases in the cycle: expansion, stagnation and recession. The length of the periods, and the particular features, obviously vary with historical circumstances; whereas the crash of 1929-1933 was rapid, the stagnation period in the latest cycle, from 1970 to 2008, has been very long.

There has long been concern for the repeated failing of economies following a successful growth phase. Malthus recognised the problem of an eventual limit to demand.

“There would evidently therefore be a general want of demand, both for produce and population; and while it is quite certain that an adequate passion for consumption may fully keep up the proper proportion between supply and demand, whatever may be the powers of production, it appears to be quite as certain that an inordinate passion for accumulation must inevitably lead to a supply of commodities beyond what the structure and habits of such a society will permit to be profitably consumed.” [Malthus 1936. First published in 1820.]

Karl Marx was largely driven by a desire to find a solution to this basic contradiction between what is possible and what is achieved, to the misery produced from the successes of capitalism. He was concerned by the failure of the society of the nineteenth century to make proper use of new discoveries and new human capabilities.

“In our days everything seems pregnant with its contrary; machinery gifted with the wonderful power of shortening and fructifying human labour, we behold starving and overworking it. The new-tangled sources of wealth, by some strange weird spell, are turned into sources of want.” [Marx 1954. The 3 volumes were originally published in 1867, 1884 and 1894.]

This nineteenth century quote could have been written today. One key difference is that Marx sought for greater understanding and a solution. Then he, and his followers, took action. In the early decades of the twenty-first century worthy-sounding discussions of topics such as the considerable gap between rich and poor end with weak claims of powerlessness and are coupled with a refusal to consider the many economic and political policies that have been shown to work, in a past when people had backbone.

Marx considered the ‘internal contradictions’ of capitalism and discussed the way in which a fall in the rate of profit would lead to stagnation and to recurring crises. Further growth only becomes possible once overproductive capacity has been destroyed.

“... the partial destruction of capital [wherein] the loss is by no means equally distributed among individual capitalists, its distribution being rather decided through a competitive struggle in which the loss is distributed in very different proportions and forms, depending on special advantages or previously captured positions, so that one capital is left unused, another is destroyed, and a third suffers but a relative loss, or is just temporarily depreciated, etc. ...

The confusion is augmented by the attendant collapse of the credit system, which develops simultaneously with capital, and leads to violent and acute crises, to sudden and forcible depreciations, to the actual stagnation and disruption of the process of reproduction, and thus to a real falling off in reproduction.

Development of the productive forces of social labour is the historical task and justification of capital. This is just the way in which it unconsciously creates the material requirements of a higher mode of production. What worries Ricardo is the fact that the rate of profit, the stimulating principle of capitalist production, the fundamental premise and driving force of accumulation, should be endangered by the development of production itself.”

This reference to Ricardo indicates that Marx was not alone in his concern for the development of growth capitalism; a concern which has been lacking from populist economics of the late twentieth century and early twenty-first century, at a time of depression when such an analysis is particularly needed.

Marx hoped that a crisis would lead to an overthrow of this faulty system by a socialist revolution in developed countries. Kondratieff, and other scholars of long economic cycles, noted that such crises had occurred in the past, with the dominant system eventually recovering rather than being replaced. The communist revolution might not then be imminent.

Many of the theories are unnecessarily complex. One categorization of these theories, noting key proponents of each, is: investment theories (Forrester), Schumpeterian innovation theories (Freeman, Mensch, van Duijn), price theories (Rostow), Marxist theories (Mandel) and social structure theories (Gordon). [van Duijn 1983] The picture here has features of several of these, with the focus on physical overproduction after which a system dependent on growth will collapse rather than move to equilibrium.

In the absence of central control an economic system will follow its fundamental behaviour patterns. The capitalist system seeks profit and requires that excess capital be invested in new enterprises. The profits arising from that investment then further enrich the original possessor of excess. Any capital left idle fails to generate such additional wealth, and may indeed reduce in value

in inflationary periods. The process works best when the capital is recycled quickly, and when the volume of goods produced increases rapidly.

So long as there is sufficient demand for new products, the product can be sold and this recycling of profits may generate a period of economic growth. But there are limits to the rates at which any given society can make use of material products. The limits to consumption may be absolute – when every person has all that is required – or may be generated by an unequal distribution of income, with some groups having very little purchasing power.

Once a community has the capacity to provide for all needs and a given market is saturated the process begins to break down. In most productive enterprises there is a long lead time between planning and execution; it was some time in the past that investors saw an opportunity for successful profit and set up the process which involved the construction of new plant and the provision of goods to the market place. Many different investors would have recognised the same chance for profit and when the limit is reached planned new plant would still be under construction.

There is then no chance for an orderly transition to a new and more stable production pattern. The new producers are more efficient, having built plant using the latest technology. They can compete successfully and the older producers are forced from the market. So begins a period of retrenchment and unemployment.

A wave passes through the economy. As new plant is no longer required, the first to suffer are those who manufacture production machinery, and their suppliers. As plants close down purchasing power is reduced and further businesses struggle. Available capital has nowhere to go and the financial system struggles.

The system follows an ‘overshoot and decline’ mode. A modern economy is surprisingly similar to many simple natural systems. For example, consider a field newly colonized by rabbits. The rabbits will grow healthy if there is sufficient food and no competitors, and will rapidly increase in numbers. However, with no conscious overall planning, the time will come when the population is too large for the resources available. But the large number of rabbits will continue to breed. The consequence is overgrazing and rabbit famine. Capitalism is no wiser than a warren of rabbits or a plague virus overwhelming and killing its host. There are many checks and balances in most natural systems; for rabbits this is provided by predators who keep the rabbit population at a sustainable level. Such a countervailing force is lacking in capitalism where even now the only policy on offer is growth in the old pattern.

Bertrand Russell illustrated the foolish behaviour of free enterprise. Consider a pin factory which already can provide all the pins needed, when some technological advancement allows the production of twice as many pins for the same labour force. One possibility is to fire half the labour force and to continue producing the same number of pins; this then provides increased profits for a few and unemployment for many. Another, the spreading of benefits through a reduction in the hours spent working each week for a decent wage is not considered. A frequent reaction is to double output, which leads to flooding of the market, to saturation and market collapse – which may eventually bankrupt the company. The process is much worse when the whole economy joins in. When significant sectors all share in overproductive capacity, displaced workers are unable to move elsewhere for employment, and a ripple of reduced incomes, reduced spending, reduced production and reduced employment moves through the economy.

Many ecologists refer to the tragedy of the commons in order to illustrate overshoot-and-decline systems behaviour. [Hardin 1968] If a common plot of land is available to all for the grazing of livestock, it is to the advantage of each individual to build up stock. However the end result of a continuing increase in stock will be an eventual overgrazing and the ruination of the commons. Note that any individual who sees the problem and acts unilaterally to limit stock suffers doubly –

from the loss of immediate potential gain as well as from the final collapse which is not prevented by one individual action. Collective action is called for.

This twenty-first century depression is further complicated by the achievement of global overproduction, as mankind has reached the very limits of the earth. Like the rabbits, overgrazing can only result in mass collapse. The many warnings have been ignored until it is too late, and the final completion of the process may be sudden.

“The French use a riddle to teach schoolchildren the nature of exponential growth. A lily pond, so the riddle goes, contains a single leaf. Each day the number of leaves doubles – two leaves the second day, four the third, eight the fourth, and so on. ‘If the pond is full on the thirtieth day,’ the question goes, ‘at what point is it half full?’ Answer. ‘On the twenty-ninth day.’

The global lily pond in which four billion of us live may already be at least half full. Within the next generation, it could fill up entirely. Occasional clusters of lily leaves are already crowding against the edge, signalling the day when the pond will be completely filled. The great risk is that we will miss or misread the signals and fail to adjust our lifestyles and reproductive habits in the time available.” [Brown 1978]

The economic lily pond of the developed nations is full. A phase of successful achievement, when most material needs can be met (or at least so far as people are able to share in the necessary purchasing power) is quite different from a period during which there are significant unsatisfied needs (such as following war or depression). There is now overmuch productive capacity in many key industrial sectors and, for the moment, in agriculture. Yet more productive capacity, designed in decades past before when growth was assumed to go on for ever, has continued to come on stream, with each country competing to knock others off. Modern economies may work reasonably well, in overall terms, during a growth phase, but tend to fail when growth falters. Such economies are rather like a bicycle when at rest – lacking the countervailing forces of movement it tends to fall over. Here is the root cause of the present long-term depression – this free market capitalism cannot cope with success. Growth and innovation have taken us into this mess and cannot be relied upon to take us out into a bright new future.

Modern man appears to be locked into a world of alternate construction and collapse. It is as if we have been found guilty of some terrible crime against the gods and given a collective sentence of eternal struggle, with the fruits of our endeavours always snatched away just when they seem within reach. Thus we share the fate of the mythical Sisyphus, who is destined to push a boulder time and again up a slope, only to have it roll on down again each time that success seems assured. This is truly a ‘Sisyphean’ age in which greater effort is called for so that nations and peoples may compete in order to produce too many goods for saturated markets, while many starve and few gorge themselves. Precious resources are squandered, other species are driven into extinction by a rapacious homo sapiens, and the environment is reduced to a state of destruction.

The concept of such overshoot and decline has provided an accurate description of subsequent events. Kondratieff’s 1925 theory was soon validated by the Great Depression, marked by the stock market crashes of 1929 and 1933.

These events followed a period of considerable economic growth. Between 1920 and 1929 the GDP of the USA increased by 43%, that of Great Britain by 13%, and that of France by 54%. [Saint-Etienne 1984]

“Economic progress was rapid between 1925 and 1929, as illustrated by the League of Nations Index for Manufacturing Industry, which rose eighteen points during this period, the figure for Europe (excluding the USSR) and North America show rises of nineteen and twelve points respectively. The boom was not a period of uninterrupted national growth, but recessions, such as those experienced by Britain and Germany in 1926 and by the United States in 1927, were

shortlived. During this period international trade expanded even faster than production, and the output of raw materials increased substantially.” [Fearon 1979]

Note in particular the reference to the expansion of trade.

“World trade also increased at this time, despite continuing overproduction. ...the price index of the composite good representative of all goods traded fell by 12 percent from 1925 to 1929 [and 17 percent from 1924 to 1929], while the volume or quantum index increased by 20 percent [and 32 percent from 1924 to 1929]. This points to an ongoing situation of oversupply and extreme competition in world markets. ... all categories of goods participated in the collapse of international trade.” [Saint-Etienne 1984]

While many modern economists blame protectionism for the depth of that depression, the cause is surely to be found in what went before and led to the collapse – the increased volume of trade. In fact many countries that were forced into policies of self-reliance benefited from the change.

“Shrinking incomes and a shortage of foreign exchange forced Chileans to cut their foreign purchases to the bone.... With foreign goods out of reach, dozens of small manufacturing enterprises sprang up. By 1935 the Chilean economy was back at pre-depression levels.

Elsewhere in the world, other countries that had relied on foreign manufactures went through similar changes. India’s economy was in desperate straits in 1931. ... Yet India’s very desperation encouraged domestic industry. The output of cotton textiles expanded. Cement production doubled between 1931 and 1937. In much the same manner, the declining demand for raw silk, particularly in the United States, forced Japan to shift resources from agriculture to industry. By 1937 Japan was almost self-sufficient in textiles, railroad equipment, electrical machinery, and many other manufactures.

Similar examples abound. In Mexico ‘the industrial sector became the engine of growth’ during the 1930s.” [Garraty 1986]

As well as Chile, India, Japan and Mexico, Garraty refers to the development of industry in Spain, Australia, Argentina and Brazil. One must not forget Germany and Italy, which shifted to central control under fascism and soon had the railways running on time and armaments factories buzzing.

There was ample evidence of overproductive capacity and excess stocks in the years leading to the depression.

“It may be that the market for some consumer goods – for example, automobiles – was reaching a state of dynamic saturation ... and therefore consumer resistance was mounting; the housing market too was becoming saturated.” [Fearon 1979]

“In mid-May 1925 the Harvard Economic Service had called attention to the ‘existence of a considerable excess of capacity in many branches of industry, especially in those producing basic materials or staple commodities intended for sale to ultimate consumers’. ...

In midsummer of 1928 E C Harwood had warned that the practice of ‘super-stimulated sales’ had accelerated the approach to a ‘satisfaction point’ (the term he preferred to ‘saturation point), for automobiles in particular, and that the automobile industry was already ‘vastly over-equipped’ ... Stuart Chase had written early in 1929: ‘If we should cease to buy automobiles at the present rate, what would happen to prosperity, would it go down like a pack of cards ?’ ...

The Berlin Institute for Business Cycle Research correctly foresaw that the German downturn in 1928 would be long and severe, recognized the depression as no short-term affair, and attributed its severity to the excess capacity to which the German rationalization movement had led.” [Davis, 1975]

Agricultural production had also moved ahead of demand.

“Between 1925 and 1929, the combined average price of the leading agricultural commodities fell about 30 percent, yet unsold supplies of these products piled up in ever-larger volume. To contemporaries the farm problem could be summed up in a word – overproduction. Too much was being grown, and the glut was causing prices to fall.” [Garraty, 1986]

“To a degree previously unappreciated, the world commodity price structure had become highly vulnerable by 1929. ... Large unsold stocks and overstimulated production in sugar, coffee, wheat, rice, cotton, silk, wool, rubber, tea and copper affected a great many countries.” [Davis, 1975]

In the face of excess production, purchasing had been stimulated in a forerunner of the modern consumer society.

“The sale of more expensive items was assisted by the introduction during this period of hire purchase, or instalment credit as it is known in the United States. By 1925, the volume of instalment paper outstanding was \$1,375 million, and by 1929, \$3,000 million.” [Kindelberger 1973]

Everywhere there was evidence of excess capital and increases in money supplies.

A manuscript completed in 1928 “rightly pointed out the recently ended easing of the money market, the rapid increase in bank credit, the relatively high rates on brokers’ loans, the unusually large volume of savings, the ease with which securities had been marketed, the heavy investment by the public in the security markets, the wide diffusion of ownership of bonds and shares, and the spectacular advance in stock prices.” [Sprague and Burgess; referenced in Davis 1975]

Stocks were overvalued in a booming stock market – “ten times annual earnings had long been regarded as a fair selling price for stocks, but ... in 1928 the ratio had risen nearly to twenty to one.” [Davis 1975]

The playing of the market, and the huge profits taken from it, gave rise to an increase in questionable practices and channelled money into unproductive pockets.

“Before the Wall Street crash, here [in the USA] and in European countries, scores of vulnerable positions were built up in part through fraudulent activities. Sooner or later many of these concerns collapsed, with heavy losses to disillusioned investors. One consequence, as Snyder wrote late in 1928, was ‘a distinct transfer of wealth from the many to the few, from the ignorant and improvident to the ... sagacious, the farsighted and the crafty.’” [Davis 1975]

These features of the period before 1929 are all too familiar, being very similar to developments in the last decades of the twentieth century and the first decades of the twenty-first century, and like today the boom before the crash was characterised by considerable global movements of capital.

Another of the numerous sources of the financial crisis was the rapid increase in international debt. “Such was the ease of borrowing, especially from the United States, that countries undertook a much larger degree of indebtedness than they could, ultimately, pay.” [Fearon 1979]

“Huge foreign loans floated on U.S. and British markets from mid-1924 to mid-1928, and impressive U.S. prosperity for another year or more, had promoted vigorous but often imprudent expansion in Europe and Latin America.” [Davis 1975]

“There was a flurry of postwar lending through foreign dollar bonds, which reached sizable amounts in 1922. Operations in 1924, however, lifted the volume to a new high plateau of more than \$900 million a year, from which it rose to above \$1,250 in 1927 and 1928. ... In the six years from 1924-9, the United States loaned abroad some \$6,400 millions and the United Kingdom \$3,300 millions.” [Kindelberger 1973]

The developed world had failed to master the preceding boom.

“Ours is a problem of the impoverishment that comes from plenty. ... If we are to avoid a period of misery and disruption which may threaten the fabric of our present civilization, we need a renewed effort of searching analysis and constructive reform in our Western world, comparable in boldness and in determination to that which is now being witnessed in Russia, however different to be the goal and the method.” [Salter, 1932; quoted in Davis 1975]

The boom came to an end with the stock market crash of October 28 1929, and stocks continued to drop in value until 1933, by which time USA share prices were about 20% of 1929 values; the GDP of the USA contracted by almost 30% between 1929 and 1933.

“The slump which began in 1929 and soon enveloped every manufacturing nation as well as primary producing countries all over the world was regarded by contemporaries as no ordinary depression. ... Rising unemployment, falling money incomes, the rapid growth of underutilised capacity, the drop in primary-product prices and the collapse of international trade combined to depress the international economy in a way few, if any, serious economic thinkers had thought possible.” [Fearon 1979]

That crash, the Great Depression, added to social strains that resulted in the spread of fascism and the Second World War. There could be a similar outcome to the current depression.

The Great Depression and the following expansion period of successful economic growth followed the Kondratieff wave theory – which suggested three phases in the cycle: expansion, stagnation and recession. Expansion after the destruction of the Second World War turned into stagnation around 1970, as predicted, with the appearance of excess capacity and overproduction. OECD Interfutures background papers included a number of reports of excess capacity and a fall in profit rates.

“The large volume of excess capacity. Whereas average capacity utilisation ratios in manufacturing industry in the 10-year period from 1964 to 1973 were 85.4 in the United States, 95.9 in Japan and 86.3 in Germany, they had fallen to 83.0, 85.4 and 81.7 respectively by the third quarter of 1977. According to the figures available, the latter rates are the lowest since 1960 in Japan, France and the United Kingdom, but in other countries they are roughly comparable to the rates in previous recessions. The situation is made worse, however, by the fact that in recent years investment has gone into labour-saving projects.

The fall in profit rates. In manufacturing industry up to 1970, the fall significant only in Germany and the United Kingdom and to a lesser extent in Sweden and the United States; no significant trend is perceptible in the other countries except Japan, where profit rates increased right up to the moment when the oil crisis produced a sharp downturn. In industry as a whole, investment became less profitable in most countries.” [OECD Interfutures 1979]

The puzzle demanding solution has been the considerable length of this ‘stagnation’ phase, which was under way in 1970 and only moved into recession in 2008. There were in that period a series of bubbles each of which eventually burst, including the stock market crash of 1987, but no great depression of the magnitude of that in 1929-1933. The answer lies in the combination of the damping and counter-cyclical effects of the welfare state (with a considerable public sector and aid to the unemployed who continued a modest level of consumption) and the considerable control over financial activities by nationalised enterprises, central banks and international agencies such as the World Bank and International Monetary Fund. The overall relative stability between 1970 and 2008 has showed the power of collective action in moving towards a control economy and away from an unregulated free market. Indeed the weakening of such controls was a major factor leading to the 2008 crisis.

This understanding of long waves in economies, the importance of excess capital, the Great Depression and features of the post-1970 global economy was described in 1989. [Robinson 1989]

The following summary and forecast of the next few decades, written in 1989, was based on that concept.

“The present depression is then lasting longer than previous depressions, and longer than expected from a simplistic theoretical model. It was only in 1987 that the first stock market crash occurred, almost 20 years after the commencement of the depression; the next, more substantial collapse cannot then be expected for a few more years yet. It may then be some time before the stock markets take off again in another forgetful splurge of artificial profit-making and then crash as in 1931-1933; I would expect the next crash to occur during the opening years of the next decade.

The present occurrence of yet another of a long series of depressions is not surprising. What is remarkable is the length and relatively benign nature of the current depression. After all, the last phase of growth and depression took just 20 years. Between 1919 and 1939 the world recovered from war, economies flourished until there was overmuch productive capacity, the stock market boomed and crashed and unemployment became widespread. The political consequences were the building of the welfare state in some countries and the spread of fascism in others – which led to the Second World War. Any talk of a rapid speed of change must be measured against that period. The recent growth phase lasted some 23 years, from 1945 to 1968; the drift into depression lasted a further 19 years before the stock market crash of 1987, and the full collapse has yet to arrive. The 44-year period, 1945 - 1989, has been a relatively static and benign historical period. The now-maligned Keynesian theories have ameliorated the worst effects of the depression phase, which is both longer and less savage than on the last occasion. It is important to recognise, and learn from, this partial success, rather than suggesting falsely that welfare provisions have contributed towards the downturn.

Just as the present depression grew out of the previous growth phase, and many current policies were formulated in reaction to perceived high levels of taxation, so too other tensions which have always existed will increase as social problems continue to be neglected and productive (in terms of human welfare) structures are demolished. In the coming decades we can expect a new balance to be reached, but this is not for tomorrow – I fear that 20 or 30 years may pass before a new wave of decency arrives. The strong probability remains that such a caring phase may fit once again into the Kondratieff pattern, that lessons of history will again be poorly learned, and that the world of our children and grandchildren will again be witness to the destruction of further depressions and human wastage.

But there is a worse possibility. It is feasible that the new technological capabilities and the appearance of massively powerful transnational corporations (TNCs) will usher in a resilient dystopia ruled by new, secretive dynasties, a 21st century combination of Brave new world and 1984, with the destruction of the human and natural environments continuing under the impetus of power and profit.”

The expectation of 1989 that “the next crash [would] occur during the opening years of the next decade” has proved accurate, with the major crisis beginning in 2008. The fear of a new dystopia ruled by corporations is proving prescient as corporate fascism increases its power. So too with the continuing destruction of the natural environment – both major parties in the 2012 USA Presidential election emphasised growth and massive increases in the national gas and oil industry, with no action plan for dealing with climate change, the world is pumping out ever more greenhouse gas emissions each year, and New Zealand has a focus on building ever more roads. The understanding based on those many years of study and analysis have provided a forecast that is passing the tests of time, as the world moves towards a terrifying future.

Most of the elements of the forecast brought together to build a unified picture of the coming decades come from other scholars in many different fields. What I did was to look carefully at the

facts to apply an educated judgement to determine which to take on board. The above concept of a very long stagnation phase of a Kondratieff wave, with the expected collapse of the recession phase commencing in the first decade of the twenty-first century, is my own contribution. Two very different sets of expectations were current in the early 1980s. 'Authoritative' economists and their acolytes believed that their liberal global capitalism solved all economic problems and would last for ever. Colleagues discussing long waves in a number of Paris meetings suggested that the downturn would come soon, bringing collapse. I agreed with neither. I had recognised that the stagnation phase had commenced, as expected from the theory, around 1970, and I had gained an understanding of the reasons why this particular stagnation should last so long. The large governments built up in the war years, and as a reaction to the Great Depression, together with global corporations and international institutions, were holding the system together despite a basic instability and major collapse was, in 1989, still some time off in the future.

* * * * *

Chapter: Alternative economics

The basic point explored here is simple. Humanity occupies a finite planet and has come to fill, and overpopulate, all available space. Damage to local and regional ecosystems has become global, and resources are running out. The drive for expansion and growth has become ruinous and mankind is truly at a turning point. We must change direction to a different paradigm, adopt policies for stability and limit activities in order to protect the earth, its magnificent life systems, and its peoples. Or else suffer and destroy.

As noted in the chapter "A better way", it is not difficult to build a wish list of hopeful policies. There is no conflict amongst them. The key question is to set down the guiding principles for the appropriate governance of this new society. Without that, talk of a different way is only an exercise in futility.

There have long been two major conflicts in civilised mass societies. One is between the rule of an elite (king, dictator, dominant class of oligarchy) and democracy (the rule of the people). A second conflict concerns the concept of inviolability of private property (claiming that income is for the individual to choose how to spend, a free market) as opposed to collective action and ownership (requiring taxation, and control for the common good).

The post-2008 global economic crisis, like the Great Depression of 1929 and thereafter, is bringing misery to many peoples; the focus should then be on the collective good, as it was in the policies of Franklin D Roosevelt (the New Deal) and the Labour parties of the British Commonwealth. Then acceptance of an end to growth can bring widespread wellbeing. Yet the controlling power is with corporations and financial institutions, which feed off growth and inequality. Capitalism must be brought to heel and the powerhouse of capitalism, the stock market, must go. What then will replace such extensive private ownership? If that question is not faced, and answered, any prescription for a better way falls at the first hurdle.

A number of futures research scenario projects have included such a low-growth policy, following the assumption of a change in social values. Whereas the parameters input into the models used, and the physical outputs for the two very different pictures of low growth – failure (low growth despite a desire for expansion) or stability (low growth is the policy) – are similar, the social consequences are completely different. Some features of a low-growth path were explored in the OECD Interfutures project.

“In scenario B1, value changes are rapid and there will be a consensus on the slowdown in growth, since it will be accompanied by a change in the content of ‘social output’ (in the broadest sense of the term).” [OECD Interfutures 1979, page 85]

There was some recognition of the considerable resultant changes.

“The context of the demands of the ‘Post-Materialist’ type also represents a clear break with the past. ... change in values also depends on the whole social development process ...” [OECD Interfutures 1979, pages 109-110]

Yet there was no consideration of the structural changes required in the economic system. Indeed the evident failure of the Interfutures analysis to deal with such a key feature, together with the confusion of the final report with its masses of practically meaningless numbers and lack of clarity, was an important influence in my recognition of the shortcomings of scenario analysis.

There can be no adaptation, no paradigm shift, without an available alternative that accepts the need for stability (or, indeed, steady reduction in human activities) rather than growth. What are the basic requirements of the new system?

Guidance is provided by a set of simple ‘theorems’ that explore the probable consequences of differing reactions to progress, with increased efficiency and productivity. [Robinson 1994, chapter “Economic theorems for a stable economy”, pages 144-150] Such advances can make it possible to produce goods, and services, with reduced human input. An example of the possible outcomes has been given above in Bertrand Russell’s discussion of a pin factory when a technological advancement allows the production of twice as many pins for the same labour force. The possibilities are: to fire half the labour force and to continue producing the same number of pins, to double output and flood the market, or to spread the benefits through a reduction in the hours spent working each week for the same wage. The reaction is determined by power, by who makes the decision.

The focus here is on society rather than one company, so each private enterprise is not considered in isolation. Rather, what is the best balance between private and public employment?

It is assumed that the greater increase in productivity is in the private sector, where machinery will improve the production of material goods and computing technology will reduce the tasks of bureaucracy. Many tasks in the public sector, such as teaching, policing and health care, are more labour intensive.

If private output (production) is little changed but with fewer employees, displaced workers go on the unemployment benefit and there is a need for more government spending. However, with the loss of employment, there will be a reduction in taxable income. There must then be an increase in the rate of taxation – or public borrowing against an improbable future – or cuts across the government sector.

If, as is probable, there is a significant reduction in demand for goods as purchasing power decreases (the unemployment benefit being less than earned wages), the private sector will employ still fewer people, and a downward spiral will commence.

In the absence of suitable redistribution the advantage from improved efficiency will be to employers and the owners of private enterprises, whose (already high) incomes will increase. In a small periphery country such as New Zealand, a greater proportion of that disposable income will be spent overseas (in imported cars and foreign travel, for example) and not on locally produced goods. This will add to balance of payments problems as well as reducing demand for local production.

If those unemployed are given employment in the public sector, there is no such reduction in demand and no threat to private enterprise. There must however be an increase in the rate of taxation to pay for this – with taxes paid by all the population, since there is full employment.

When there is an increase in efficiency, it will be possible to reduce the work week, and to expand the public sector to provide improved social services as well as environmental restoration.

Inaction leads (as it has done) to inequality and recession. Redistribution and full employment demand collective action, and a considerable government role in the economy.

“The benefits of improved efficiency are spread evenly and fairly amongst the working population. No-one is put out of work, rather each person has increased leisure time with unchanged income. But note that this requires an increase in taxation since more public servants are required to carry out those people-oriented tasks which demand personal effort.

This is a key point of this examination of features of a steady state economy which, far from stagnating, is improving both standards of care and efficiency of production. The process leads to increased public goods and increased public activity, which is to be paid for in a mixed economy by taxation.

A pure socialist system would not require the apparent absurdity of giving with one hand and taking back with the other – as each worker is given more and then demanded to hand over more in taxes. A completely socialist system is not however suggested for two reasons. Firstly, a mixed economy similar to one which I outline is the preferred option of most New Zealanders. Secondly, this would put too much power in the hands of the state. The question of power, and how it is to be exercised, is all too often missing from discussions of political utopias and preferred systems, but it is the feature which dominates in the real world. A mix of state enterprises open to public scrutiny and/or control plus a multitude of private sector business enterprises would provide a good mix – as it did in New Zealand until the right dismantled the public sector. ...

The increase in taxes since the Second World War has been a vital part of the development of a successful and well-balanced New Zealand economy. Reductions in taxation have shifted the power base, and assisted the collapse of the national economy. Thus, even though each of us may wish to pay less taxes and to keep all income for our own expenditure, when that desire is translated into a national policy the consequences are appalling.” [Robinson 1994, pages 149-150]

Providing a better life for everyone as a result of progress, innovation and human achievement can not come from free enterprise and the free market of liberal capitalism. Within that system the world faces “the paradox of plenty” with unemployment and poverty even though “progress could provide a secure and happy life for everybody”.

“Many futures thinkers of the more optimistic 1970s describe a leisure society, which had become possible by using the amazing capabilities of modern communications systems to control and expand the use of the scientific discoveries of the industrial revolution. All our physical wants can be satisfied, and the world no longer faces the need to rebuild after the mass destruction of some global conflict. But while a secure and happy life for everybody is theoretically possible, the society of the 1980s has become more unequal and existing social structures are being pulled apart. There is high unemployment rather than reduced working hours and greater leisure for all.” [Robinson 1989, back cover]

The consequences of privatisation have long been evident. A ready way forward is a mixed economy with a sizeable public sector, with high taxation, laws that limit the regular work week and high rates for overtime. This policy, which I have called “lazy socialism”, provides a strong collective action to assure security for all.

“Technology has brought former luxuries out of the palaces of yesteryear and into the lives of ordinary people. Now we should take care to make a good use of such capabilities – each person may work less and enjoy more. Instead we have the stress of the workaholic coupled with the alienation of the unemployed. Something is radically wrong. ...

One of the great achievements of the post-war welfare state, in New Zealand as in many other countries, was to remove fear from people’s lives. If people were old or ill they knew they would be cared for. That security was the hallmark of a civilized society. But conservative governments across the world have crippled that system, so that fear and insecurity have returned to everyday experiences.

Much of this hopeful vision existed until just a few years ago; now we must ask – and answer – the question of how those positive features of a caring society can be restored and extended.”
[Robinson 1994, section “A vision” in chapter “Lazy socialism”]

The picture is of employment of everyone who wants a job, including those struggling or less able who make up so much of the surplus army of capitalism, the unemployed and the rejected. As Jack London wrote:

“Into the surplus labor army are herded the mediocre, the inefficient, the unfit, and those incapable of satisfying the industrial needs of the system.” [Quoted in Niven 1991, page 34]

They too, the mediocre, the inefficient and the unfit, deserve a good life, deserve to belong and to be valued. Although the western developed world calls itself a free society, true freedom is lacking – freedom from want, freedom to think and do as you wish, the dignity of working with decent pay and conditions, security of housing, health and dental care and other social services.

It would be possible to free the human spirit from drudgery and the subservience forced by poverty and underemployment and allow people to take their own paths, even singing on the way.

“Afoot and light-hearted I take to the open road,
Healthy, free, the world before me,
The long brown path before me leading wherever I choose.”
[Walt Whitman 1871, Song of the open road]

“I’m roving free as the breeze
Who can stop me and why?
I can live as I please,
Open road, open sky!”
[From Johanne Strauss operetta, The gypsy baron, 1885]

Freedom can be a wild thing, but is never possible with the spectre of want. Once there is security, as American poet Carl Sandburg observed, a man is his own master.

“Then the workmen are free – free to find work elsewhere or free to economise, free to go in rags, and live on bread and potatoes, and heat but one room in the house, and spend the last of the money that was being saved to buy a home.” [Quoted in Niven 1991, page 80]

Society should be organised to allow the lifting of the spirit and celebration of a good life.

“As I write I recall that this morning I enjoyed the beauty of the sun glistening on raindrops spread across an autumn leaf, and I watched the movements of a fantail amongst the branches. Those moments were precious to me. I am not alone in this. Indeed, while none would complain on their deathbed that they wish they had spent more time in the office, working harder and harder, many have bemoaned a lack of family ties and a failure to live more deeply and to experience more of the truly wonderful adventures of existence.” [Robinson 1994, page 135]

This is far from the regimentation and forced conformity of today where even the age-old option of full-time motherhood is denied, as beneficiaries are forced to join the workforce and leave their young with others. That choice and those possibilities did once exist, for a brief period in the 1950s and 1960s, a time of full employment. A free spirit could work for some months, with good pay and overtime, and then range free for the rest of the year. Many did so for a few years before settling down. Opportunities for employment are now so limited that this has become impossible

That growth stage is long gone. For some time, from 1970 to 2008, developed economies have been caught in the stagnation stage of a Kondratieff cycle, and are now sliding into a great depression. This is the end of the American dream so much beloved by their politicians, of unlimited growth allowing any get-up-and-go hard worker to build a new business and become rich. During a time of stagnation or downturn, with most wants capable of satisfaction, great wealth is possible only through theft. As has been so evident following the break-up of the USSR and with the blossoming inequality and obscene wealth of a few in developing nations such as India and China, the modern entrepreneur does not produce wealth to satisfy others. That has certainly been the pattern in New Zealand, which changed from a relatively egalitarian society before 1984 to one of great inequality. The much-vaunted innovation (that has replaced independent science here) is to improve efficiency in the Bertram Russell's pin factory so that the work force can be downsized and, with reduced labour costs, the owners reap a greater profit. All past hopes have been thwarted.

This pattern can only be overturned and the negative consequences of past success corrected by a national collective response, well informed and determined. Yet an opposite policy direction has become popular amongst critics of today's failing society. Many desire to leave the state untouched and withdraw into communities where groups of people can look after one another in neocommunes, new forms of community living. This path leads to the breakdown of civil society. Critics of the status quo quit the scene, making a choice of exit rather than voice. [Robinson 1989, with reference to Hirschman, 1970]

“Conservative (i.e. of the right) political forces have allowed welfare provisions to run down, thus opening the way for the development of alternative private organisations. In our democracies the ordinary person then faces a choice between Exit, voice and loyalty as responses to decline in firms, organisations and states which are not providing satisfactory services. This has been particularly notable in the medical field.

‘Those dissatisfied with long public sector waiting lists have three options open to them; they can opt out of the public sector by taking out medical insurance and making use of private sector services or by making use of these services without insurance (here called exit); they can try and encourage those responsible, principally doctors and governments, to fix up public sector services, for example by lobbying their Member of Parliament (here called voice); or they can simply do nothing, preferring for one reason or another to suffer in silence.’” [Fougere, 1974]

Exit fails to provide a practical solution to the challenges that we face today. And unfortunately much current activity turns away from the need to challenge and change the core of society towards an escapism that is, in effect, just another form of ‘exit’. The focus is all too often on local actions, not for an overhaul of the public sector. Such division into a tribal society without any central authority represents the breakdown of a civilisation and threatens to bring rule by tribal chiefs and the horrors of unbridled power. This is seen in the stories of the Old Testament where warring tribes each desired a god more powerful than the others, so that they could kill rather than be killed. Here in New Zealand, similar intertribal war was a feature of traditional Maori tribal society, resulting in near-extirmination in 1800-1840 following the introduction of the musket. [Robinson 2012]

The populist community movement is based on a false picture of harmony in local groups. I have been active in such community groups [Island Bay Residents Association, Southern Environmental Association, Island Bay Community Centre], as well as in volunteer political and special interest groups [New Zealand Futures Trust, Royal Forest and Bird, New Labour Party, Green Party, Alliance]. A uniform picture has emerged, of the manipulation of a subservient majority by a control freak with sharp elbows, even psychological bullying both in small ways as when Forest and Bird committee members threw papers across the table at me or stormed out, or the rather more savage manoeuvring by the New Labour Party leadership within the Alliance. It is always so. The structure of any institution generally make it a place where people at all levels jockey for whatever power seems within their grasp. Power's an intoxicant; get a bit, want a bit more. All these organisations were governed by a guru or a small coterie, either to keep control or to feather their own nest (the latter particularly evident in the struggles within the Island Bay Community Centre). Unfortunately we get the democracy we deserve and too many are all too ready to go along with and turn a blind eye to deception.

Well-run communities do not happen just by chance. The examples of China and Cuba are often presented as showing the success of local organisation, while forgetting that these communes and community efforts were stimulated, supported and protected by a central authority, with party cadres ready to step in and sort out local problems as they occurred. Once the central support waned in China, the commune system collapsed. A strong national setting must be assured if communities are to thrive.

* * * * *

Chapter: Displacement activities

The paradigm shift and change of culture that is required if humanity is to adapt to the overpopulation and overuse of a finite and damaged planet has proved too great a challenge for the current generation. Yet the situation is evident to anyone lacking social blinkers, and writers in various genres comment on it, as this mystery novel.

“You know the Chinese curse, may you live in interesting times? Those are our times, Mr. Holloway. We live in an interesting time when several different tipping points are converging. Political, climatic, dogmatic religiosity. The next dozen years will determine our future, I feel certain. Another dozen years.” [Wilhelm 2008, page 231]

A vigorous reaction to the challenge of an overpopulated and stressed planet is feasible and can be asserted in an open democracy. The revolutionary change called for could be then worked through without conflict. However any such evolution has proved impossible in a controlled society where liberal capitalism and economic growth are proclaimed, and accepted, as forming the unchallenged bedrock, the permanent basis of modern civilisation. The forecast of collapse demands a vigorous challenge to that ideology, which must be overthrown.

The magnitude of the change with its threat to that dominant ideology has proved too great a challenge. There is too great a conflict within people and groups, between conformity, belonging and being accepted, and the alternative of revolutionary change. Consequently many turn to displacement activities, joining together to salve their consciences and express a supposed concern while refusing to consider the depth of the problems or the extent of the action required. Most writers who deal with these global issues soon retreat to simplistic calls for small community or religious revival (often turning away from the concrete reality) or suggest minimal alterations to the

growth capitalism that is a major cause of global breakdown. Critics of the status quo face the choice of exit, voice or loyalty. [Noted in the chapter on 'Alternative economics' from Robinson 1989, with reference to Hirschman, 1970.] Most choose loyalty, following the existing ideology, or exit, withdrawing from the debate. The few who appear to choose voice and speak out are so timid that they can be easily ignored.

Political debate simply ignores global issues of climate change and overpopulation. Such topics were notably absent from the 2012 USA presidential debates and are ignored in New Zealand with its vast expenditure on roads of national significance – as across Europe where the financial mess, with calls for destructive austerity, is the only issue on the table. Here is the triumph of the military-industrial-financial complex. [Described in the later chapter, 'Corporate fascism'.] International agencies wish for the oxymoron of sustainable development and refuse to step outside the growth paradigm. [Described in the chapter 'Sustainability'.] The Club of Rome and other concerned establishments soon drew back from the challenge set down by the limits to growth on a finite world. [Described in the chapter 'The Club of Rome and The limits to growth'.]

Local experiences show that such timidity and displacement activity is widespread, throughout all levels of society. Despite some apparent awareness, the many activists we have made contact with have retired into displacement activities that evade the major issue. This theatre keeps people busy rearranging chairs on the deck of the Titanic and joining in earnest discussions on the choice of music from the band. These are children playing on the beach building sandcastles and mud dams while the broad river flows relentlessly past. When it floods, they will be swept away, having failed to take any real action. Events will be determined by that river, the mass of humanity, and not isolated play – even if it is easier to belong to a happy group than to understand and speak out. We are all passengers in a bus heading for the edge of a cliff, going in the wrong direction. Yet the focus is on improving the engine and fine tuning the music loudspeakers. The call is to tread softly, to take care not to upset those threatened. Over 2000 years ago, Horace spoke of personal responsibility.

“For it is your business, when the wall next door catches fire.” [Horace (65-8 BC) Epistles Book 1, no 18.]

Yet now that the fire is blazing within the house, there is an insistence that any warning be whispered so as not to upset those packed inside. Instead of a loud cry of 'fire!' we get dancing on the lawn, as in a photograph in “A Quick Snapshot of Power Shift NZ-Pacific 2012”, announcing a gathering in December 2012 at Auckland University.

“Power Shift is part conference, part festival, part training and part celebration of the power of young people to change the world. ... Bringing together 1,000 youth aged 16 to 30 years old from all over NZ and the Pacific. ... 3-days of workshops, inspiring high-profile speakers (including Lucy Lawless) and positive action. ... Developing the future generation of leaders.

Power Shift is a collaboration between Generation Zero's grassroots network of youth organisers and 350 Aotearoa's global experience and networks, with support from other NGOs and individuals.”

One might imagine that such extravagant aims would demand a high level of speakers, adding expertise to the attraction of actress Lucy Lawless. But no. Here is the response to a suggestion of a presentation on the global problematique.

“Many of the people in Generation Zero have read the reports you mentioned, and are aware of the wide range of issues facing us in today's world. However, as an organisation, we tend to take a very solutions-focused approach – even when this sometimes includes ignoring or appearing to ignore some of the broader issues. The reasons behind this decision may seem pretty cynical – we are only one of the groups out there trying to create positive change in the world, and we feel the need to set

ourselves apart in some way in order to get media and broader public attention that we believe will help create positive cultural change in the long term. We do this by trying to always use very positive messaging and approaches.”

This is gobbledegook – whatever is solutions-focused about ignoring the issues? “Positive messaging” involves ignoring the problem that is supposedly being addressed. The use of that “positive messaging” does not differentiate Generation Zero from others as they think, since hopeful wishing is universal. The illustration, of an Australian event, presents an all-too-familiar picture. When a gathering organized by 350 in Wellington involved milling around with a few inconsequential brief addresses, my colleague Ricky McLeod muttered cynically that next they would be taking off their shoes and dancing across the grass. We looked around and there they were, doing just that, holding hands and running together across the park! If there is a serious side to all this, it has never been evident.

Such nonsense is found on the world stage as well as locally. At the Rio+20 earth summit, the 2012 UN Conference on Sustainable Development, Greenpeace (a prominent NGO) came up with an extraordinarily silly piece of theatrics with the unfurling of an “‘Arctic Scroll’, signed by ‘legends’ such as Paul McCartney and Robert Redford, to be planted on the North Pole seabed to draw attention to global warming.” [“Environment summit ends in disappointment”, The Dominion Post, June 25 2012] Littering the seabed as an environmental statement (unreadable in situ) is displacement activity at its very worst, catching the eye of the media with a piece of self-indulgent play-acting. Reality is lost sight of in all these sideshows.

Meanwhile, in the midst of the oil peak plateau, with shortages likely in a few years, and the tight financial constraints of a global economic crisis, the New Zealand Government has commenced the expenditure of billions on roads of mass destruction [aka roads of national significance]. One project is to continue a motorway through Wellington, with a massive flyover. Despite the major questions raised by that policy, a “Save the Basin” protest led by members of the Green Party has been focussed on the view from a cricket ground. That is the message propagated, to protect a sports venue rather than to prevent oil wastage and climate change. The hope was that this puffery would attract more young people, who might otherwise be turned off by the challenge of an unpleasant reality.

The refusal to face issues is demonstrated by a report by a 350 activist on a visit to Tuvalu, a Pacific island already affected by sea level rise, with most people crammed on to one central island. Human waste was polluting the only source of fresh water, the fresh water lens just beneath the surface. He strongly rejected the suggestion that the basic problem was overpopulation. That rebuff to any consideration of population numbers was shown at another meeting, at the Wellington Development Centre, where the CEO of the United Nations Fund for Population Affairs (UNFPA), visiting from New York, stormed off, most offended, when I suggested that they were failing their brief by not considering carrying capacity and limits to human numbers. The reality is that small Pacific island nations cannot be self-sufficient with ‘developed’ standard of living – probably never but certainly not without a considerable reduction in population numbers. Repeatedly such basic issues are denied as ‘activists’ keep to the narrow pathway of their conventional wisdom. Thus when the Occupy Wall Street came to Wellington, that anti-banking movement seemed driven by aimless anger. As in New York and other places around the world, no alternative suggestion was ever evident. Again there was this failure to face the fundamental question of a preferred political system.

The leaders of community and environmental organisations similarly crush any awkward initiative, acting to protect their position and their vision of allowed issues. Thus an effort in 2008 to ask Forest and Bird to adopt The Earth Charter was steadily blocked, and I walked away. My experience as a committee member of New Zealand Futures Trust was similarly restricting, and I

felt my own man and able to think and speak of my knowledge and concerns only after I was no longer a member of that organisation. In this time of conformism organisations duck for cover and refuse to consider challenging ideas. A challenge to the Wellington Royal Society branch for a talk on *The limits to growth* was refused by Te Papa (the Museum of New Zealand) as too controversial.

Meanwhile foolishness flourishes. All the various ‘environmental’ groups, including 350 and the Green Party, trumpeted their attendance at the 2010 Copenhagen climate change conference – forgetting that every voyage around the world burns valuable oil resources and contributes significantly to greenhouse gases while their attendance had no positive impact whatsoever. They did not show leadership by refusing such damaging waste and staying at home. That failure legitimises the continuing excess and gaspillage as politicians of all parties, including Wellington’s ‘Green’ mayor Celia Wade-Brown, fly regularly hither and thither – none more so than the peripatetic roving millionaire Prime Minister, John Key. An occasional word of concern is cover only; actions speak louder than words.

The close ties between growth-oriented business and the so-called environmental organisation Forest and Bird have been noted above as speakers at the 2012 Annual Conference hammered the theme of growth together with an intention to reject outspoken champions for the environment and support business. The government watchdog on energy, The Energy Efficiency and Conservation Authority (EECA) is toothless, and is similarly business oriented, having a close relationship with the motor trade.

Businessmen who proclaim a concern continue to insist on protection of the current economy.

“Of course we want a clean and beautiful country and of course farmers have to pull up their socks. But we mustn’t forget about growth.” [Dominion Post, Thursday June 28 2012]

The Sustainable Business Network defines sustainable business as “the integration of economic growth, social equity and environmental management, both for now and for the future.” There is no change implied, no choice made between growth and real sustainability. So too with another business organisation, Pure Advantage, whose report, New Zealand’s position in the green race, argues for continuing growth and competition, calling this “green growth”. [Dominion Post June 11 2012, “Business bosses call for green growth”.]

“But rather than a burden, green growth can be an economic pathway to create sustainable wealth and promises a revolution in how we structure our economy and society. ... global green growth is potentially worth NZ\$6 trillion a year and represents a once-in-a-generation opportunity for New Zealand to improve its economy for the better. ... enhancing New Zealand’s natural environment in order to improve our competitive positioning in the global shift to green growth ...”

Members of Pure Advantage come from Air New Zealand, General Motors, International Paper and Carter Holt Harvey, Mighty River Power and The Warehouse. Rob Morrison is Chairman of Kiwibank, was Chairman and CEO of Hong Kong based CLSA Asia Pacific Markets, a brokerage, investment banking and private equity group. This is hypocrisy. The aim is for expansion and not to a downsizing market stocked with products that last.

One former member of Pure Advantage, the late Professor Sir Paul Callaghan was a leading spokesman for continuation, more-of-the-same policies. He was hailed as a prominent scientist and a spokesman for ‘innovation’, with his belief that a hundred entrepreneurs (just like him) could solve the country’s economic problems. He displayed no grasp of either science or economics and refused my challenge to a debate of global issues such as the limits to growth and the need for reduction in human activities.

Callaghan’s idea of New Zealand as an entrepreneur-driven society and “a place where talent wants to live” was picked up by the McGuinness Institute (previously the Sustainable Future Institute), a

think tank wedded to current 'conventional wisdom' that describes itself as: "A non-partisan think tank working towards a sustainable future, contributing strategic foresight through evidence-based research and policy analysis." [McGuinness and Sarten 2012] Such vague but well-sounding statements ("What is clear is that science and the humanities must intersect") display an ignorance of the destruction of science in New Zealand, the impossibility of directed science and the need to challenge their deeply held worldview.

In August 2012 the McGuinness Institute, as 'EmpowerNZ', brought together fifty young people between the ages of 16 and 28 to draft a Constitution for the 21st Century. The outcome was a familiar wish list, much the same as others coming from all such exercises. There was heavy insistence on a central role for a special Maori position in conflict with any desire for equality.

"2.1 This Constitution operates to give effect to the principles of Te Tiriti o Waitangi.

2.2 The People of Aotearoa recognise that there was a system of governance, customs and traditions in place that preceded the present Westminster system.

2.3 The Declaration of Independence 1835 is the first official document of New Zealand that affirmed Maori sovereignty."

Anyone familiar with the writings of Wendy McGuinness can recognise these as her ideas; these youth are being led by the nose. There are major problems with these requirements, particularly for a Constitution where the words must be chosen with great care. Thus there are no principles in the Treaty. The "system of governance, customs and traditions in place" before 1840 was tribal and aggressive. It included slavery, cannibalism, great social inequalities and the poor treatment of women. There was no nation and no national "system of governance". The letter of 28 October 1835, headed as a Declaration of Independence, was drawn up by the British Resident, Busby, the missionary Henry Williams and mission printer William Colenso. It requested the King of England to be the parent of their infant state and its protector. The signatories were for the most part Northern chiefs, and other tribes refused to join the proposed government. The subsequent failure of that initiative for self-governance, and the continuing warfare, led those same chiefs to request and support the move to colonial status within the British Empire five years later. [Robinson 2012]

A constitution should not be founded on myths. This exercise was leading young people into a world of make-believe, and away from the global issues that will determine their future. It shows how a self-proclaimed future institute is organising a side-show and directing the attention of susceptible young people away from the global challenge to a displacement activity.

Then there are the many talks that move around the periphery of the probematique and keep carefully away from the core questions. These have included one at Te Papa (the Museum of New Zealand) for 'Forums for the Future', where three speakers bemoaned the gap between rich and poor, without daring a solution, a number of talks about the bright future of tourism with no recognition of the oil peak or climate change, and one remarkable discussion at Victoria University entitled "Are we are all f*cked?" where a drunken Member of Parliament and grandmother proclaimed her liking for being fucked and a professor dismissed forecasts of coming doom, since his god would never allow such a happening. The topic was treated light-heartedly as entertainment. The hope placed in a deity brought to mind Paul Callaghan's tale at each of his two talks that we attended of how he gets down on his knees each day to thank god for Fonterra (a large dairy cooperative). Waste from the increased numbers of cows is seriously polluting groundwater, rivers and lakes, in reality ruining Callaghan's clean-green image of the countryside.

The movement away from concrete reality and the existence of limits towards fuzzy phrases and religion has been widespread. The Club of Rome moved from *The limits to growth* with the requirement of no further growth to Strategy for survival with its idea of acceptable 'organic' growth. [Meadows et al 1972, Mesarovic and Pestel 1974] Further reports moved on down that

path. The Latin American Catastrophe or new society was “explicitly normative ... it is argued that the major problems facing society are not physical but socio-political”. [Herrera et al 1976] Goals for mankind had hopes that organised religion would join hands for “world solidarity”.

“In this chapter we assess the potential role of the great religions in breaking through mankind’s constraining inner limits and inspiring the birth of higher levels of solidarity. We recognize the great influence of the religions in the contemporary world. In spite of the erosive effects of modern science and lifestyles, and despite the spread of atheistic ideologies and the secular ethics and principles of business and government, the great majority of the people in every nation outside the Communist bloc and Japan appears to believe in God or a universal spirit, and claims to belong to a church, religious group, or faith. Hence apart even from the complex theologies of the world religions, the forms of allegiance and value they inspire constitute a major force in the world. This force cannot be neglected when assessing the future, even if it is difficult to express quantitatively and with precision.” [Lazlo 1977, page 369]

It is hard to imagine that anyone could expect a belief in a god to be a unifying factor with religious war raging around the world in 2012. Schumacher goes a step further with his call for opt-out “Buddhist economics” as if a general acceptance of “self-sufficient local communities” together with “a reverent and non-violent attitude not only to all sentient beings but also, with great emphasis, to trees” is either the way to go or possible in this overcrowded world. [Schumacher 1973, pages 56 to 66] The physical world with its limits was left even further behind with No limits to learning, which held that:

“learning and the individual human being – not material resources – are the key to the world’s future. ... The fundamental question is whether humanity can shift from a mode of learning characterized by unconscious adaptation to one of conscious anticipation.” [Botkin et al 1979]

Just what all that means is anyone’s guess. The aim of ‘bridging the human gap’ ignores the physical limits that have been reached. The habit of whistling in the dark is ubiquitous, as in the first recommendation of OECD Interfutures, which is for “creating a positive attitude to the future in the advanced industrial societies.” [OECD Interfutures 1979, page 416] There is no way that a positive attitude can succeed in imagining away the physical reality.

There has been some recognition, sometimes strongly expressed, of a coming crisis but the policy options suggested have been hopelessly inadequate. In 2009 speech, Professor John Beddington, Britain’s chief scientific adviser, stated that the world is heading for major upheavals as we head into a perfect storm in 2030, since growing population and success in alleviating poverty in developing countries will trigger a surge in demand for food, water and energy over the next two decades, at a time when governments must also make major progress in combating climate change. Lester Brown, who in a long career considering global issues has been director of the Worldwatch Institute and now the Earth Policy Institute, noted that Johnathan Porritt held an even more pessimistic view.

“In early 2009, John Beddington, chief science advisor to the U.K. government, said the world was facing a ‘perfect storm’ of food shortages, water scarcity, and costly oil by 2030. ... A week later John Porritt, former chair of the U.K. Sustainable Development Commission, wrote in the Guardian that he agreed with Beddington’s analysis but that the timing was off. He thinks the crisis will hit much closer to 2020 than 2030’.” [Brown 2011]

Despite that expressed concern and the short time left before the crisis hits with its full fury, Porritt’s solution is for more of the same, a continuation of the economic system that created the problem. In Capitalism as if the world matters, he fails to identify any real changes. Here again are wish lists and a hope that people can behave better and make existing systems produce different results.

“Framing sustainable development in government builds on the UK government sustainable development strategy based on four objectives.” But that was a failure. “Despite a tokenistic reference to the importance of considering all four objectives ‘simultaneously’, this particular articulation of sustainable development resulted inevitably in the automatic preferencing of the ‘economic growth’ objective over the three other objectives.”

Porritt refers to a plea by Donella Meadows for nice, polite, moral competition, “The Earth says: compete, yes but keep your competition within bounds” and then hopefully relies on human goodness, as:

“There is, of course, a big difference between how nature does it and how we humans chose to do it: we are able to bring moral purpose to bear on the issue.” [Porritt 2005, pages 27 and 81]

Those hopes move well away from any recognition of the very basis of capitalism, which entails the individual search for profit, to a false hope that selfish initiative driven by that profit motive will, in some new and unexplained benign form, enrich society. Morality is out the window in that system. Such questions are ignored. Other publications claiming to explore a new economics similarly suggest continuation of the status quo, with only a little rebranding.

“The new society – and it is surely here – is a post-capitalist society. This new society surely, to say it again, will use the free market as the one proven mechanism of economic integration. It will not be an ‘anti-capitalist society’. It will not even be a ‘non-capitalist society’; the institutions of capitalism will survive, although some, such as banks, may play quite different roles.” [Drucker 1993]

This, with private ownership of businesses and free market economics, is surely capitalism, despite the confusing use of words. Talk of “a new dichotomy of values and aesthetic perceptions” hide a lack of meaning. Despite being described as “a probing and incisive analysis of the major world transformation from the Age of Capitalism to the Knowledge Society” this leads nowhere. It is a recipe for continuation, but with new labels attached.

Brown presents an impressive collection of information describing the critical situation. [Brown 2011] Nevertheless he feels that “there is hope”, and he proposes “a Plan B transformation”. This at first seems to imply considerable policy changes, as: “Restructuring the economy in time to avoid decline will take a massive mobilisation at wartime speed.” However, Plan B turns out to be a whimper, driven by fiddling with tax structures. A “massive cut in global carbon emissions of 80 percent by 2020” is based on a list with no numbers attached. This is a bit of a grab bag, with even a non-existent and unproven tidal electricity generation project proposed in New Zealand’s Kaipara Harbour listed. It does not add up, and there is no discussion of the huge political changes in the global economy and power structure implied. “The stabilisation of the world population at no more than 8 billion by 2040” is madly unrealistic, being dependent only on “ensuring that all women who want to plan their families have access to family planning services” – as if the vast majority will then settle for one-child families. “The eradication of poverty” would be lovely in a perfect world, but there are no challenges here to those who profit from inequality, and whose actions have much increased inequality. The fourth component of the plan, “the restoration of forests, soils, aquifers and fisheries”, is similarly not supported by calculations of how to get there – for example, how to feed all the people without draining aquifers for much of the needed water. This is a hopeless wish list masquerading as a plan.

Herman Daly has taken up the theme of the economics of sustainable development. [Daly 1996] He asks the basic question, if growth is not going to lift us out of poverty, what will? “The answer is painfully simple: by population control, by redistribution of wealth and income, and by technical improvements in resource productivity. In sum, not by growth, but by development.” Daly suggests self-sufficient, sustainable communities without dealing with the massive collective

changes that would be required to make that possible, with the need to provide security and support services that are only possible on a national level given the current population density. The final chapter of the book, in which he attempts to meld the concept of stewardship common to most religions with principles of sustainable development, suggests Daly's concern for growth-addicted humanity springs from a religious upbringing. As a 'Christian theist', Daly supports the 'deep ecology' vision, whose eight basic principles include a call for a new paradigm (principle 6).

"Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present."
[Daly and Cobb 1989, page 377]

The prescription for the new and different system is however lacking. The "possible steps" to redirect the economy are "a widespread recognition that something is wrong", "a widespread recognition that most of the problems facing humanity are interconnected and indeed have a common source" and "the recognition that human beings still have the possibility of choosing a liveable future for themselves and their descendants". [Daly and Cobb 1989, page 356] But how can that recognition be spread, and what do we all then do? In his prescription of Managing without growth, Peter Victor again expresses a hope for change on a small scale, "driven from grass roots". [Victor 2008, quoting pages 212, 216 and 222]

"Unless GDP increases we will have to use fewer inputs as productivity rises. This means higher unemployment of labour and a lower rate of capacity utilization. Economic growth is required just to keep people employed and capital investment profitable when productivity increases.

Increases in the productivity of capital and labour do not have to be realized only as increases in output. They can instead allow people to work shorter hours and have more time to themselves. This has been the experience of industrialized countries at least as far back as 1870 though the process slowed in many countries towards the end of the 20th century. When managing without growth we would take most if not all of the gains in productivity as increased leisure to reduce the rate of unemployment and the burden on the environment. ... Such a loss of capital and labour might not matter if it was on a small scale. On a larger scale, it could become quite destabilizing and a smooth transition would be transformed into a downward spiral of disinvestment and unemployment.

For these reasons any movement towards managing without growth will have to be driven from the grass roots and it should weave together the many strands that already exist. Voluntary simplicity or simple living is one example of people in rich countries deliberately adopting a way of living that eschews consumerism and most forms of materialism. It is an idea that goes back millennia. In every generation there have been people seeking the simple life as a solution to the stresses and strains of the mainstream. Many who have followed the simple life have been religious and spiritual figures. Others have been humanists, philosophers and writers. It is an idea that just will not go away. Some of its main proponents have reached very wide audiences: Henry David Thoreau's *Walden* and Ernst Schumacher's *Small is Beautiful* were both best sellers. Another promising approach developed in response to and as an alternative to globalization is localization, a process which reverses the trend of globalization by discriminating in favour of the local ... the policies bringing about localization are ones which increase control of the economy by communities and nation states. The result should be an increase in community cohesion, a reduction in poverty and inequality and an improvement in livelihoods, social infrastructure and environmental protection, and hence an increase in the all-important sense of security (Hines 2000)."

It is all so motherhood-and-apple-pie, a dream world of happy local communities working peacefully together, in complete contradiction to historical experience and without the national political changes required to make self-sufficient community life possible. Like many writers,

Colin Hines too has seen the flaws in globalization – the failure to spread the wealth fairly, the environmental cost of global transport networks, the homogenisation of cultures and the race to the bottom of global labour. His masterplan considers how to “protect the local, globally”, with the expectation that a move to more localised systems would see “an increase in community cohesion, a reduction in poverty and inequality and an improvement in livelihoods, social infrastructure and environmental protection”, again the romantic picture of village life. Here great inequalities between communities are accepted and the conflicts between communities and tribes found throughout history, as today, are forgotten.

“The essence of these policies is to allow nations, local governments and communities to reclaim control over their local communities; to make them as diverse as possible; and to rebuild stability into community life.”

This would mean “a positive discrimination in favour of the local.” Hines offers a self-reinforcing set of policies that range from local policy to international agreements. They include tariffs and subsidies that favour local goods, and control of capital flows through cutting out tax evasion and implementing a ‘Tobin tax’ on currency transfers. Companies would have to base themselves locally in order to access markets, and corrective taxes would price out unsustainable practice.

How all this might come about is left unanswered. Although the book’s main point – that “capitalist globalisation of the economy must be replaced by business and production based on the local” – would present a huge challenge to existing control by the military-industrial-financial complex, he does not suggest a massive shake-up. Most of his argument seems to be directed at the supporters of the free market in the expectation that this will convince them that localisation is necessary and possible, and can benefit them – as shown by the chapter title, “Localisation will Bale Out the Market”. The solutions presented raise more questions than they answer. The local economy is to be revitalised. By whom? Capital flow is to be controlled. By whom? Trade and aid rules will be “redirected”. By whom? Currently the governments and corporations control all of the above. It is surely impractical to expect a newly enlightened ruling class to implement the necessary reforms, as the suggested move towards localisation is also a move against elitism, prejudice and power.

There is a pattern here that recurs again and again. Thus Heinberg, writing of *The end of growth*, adapting to our new economic reality, outlines the considerable list of issues and suggested that “We are living through the fifth great turning point in human history ... from a fossil fuelled debt- and growth-based industrial civilisation towards a sustainable, renewable, steady-state society”. [Heinberg 2011. Quotes are from pages 6, 234-6, 277 and 284.] He fails to differentiate between classes in society, referring to all people as one unit as the collective “we”, as “We have relied on economic growth ... we have created monetary and financial systems”. The discussion is overmuch focussed on the USA and on financial events whereas this is a global event of overwhelming extent – the possibility of chaos in a “default scenario” is half-hearted and fails to recognise class conflict or widespread starvation across much of the world. Hope is then placed in “communal solidarity” and “social cohesion”, on the local efforts of the Transition Towns movement together with “participating organisations and businesses”, all operating within the existing paradigm, without direct challenge to the oligarchic system. It is as if power politics do not exist, and is ignorant of the crushing of independent thought and science in a massively controlled society, as if the warnings had not already been voiced over many decades, and successfully rebuffed. This twenty-first century is no new dawn, as he hopes, but is late in the process of self-interest, denial and collapse.

A paradigm shift is a revolution, which has been, and will continue to be, resisted by the current powerful with all the force at their disposal. And, after all, “revolution is no picnic”. [Mao Tse-tung] Meanwhile the clock is ticking. When Heinberg feels able to argue that “economic

contraction need not entail catastrophe and sorrow if the process is managed well”, he is being totally unrealistic. That may have been just possible in 1972, but by 2012 it was too late. The powerful have too much at stake. Their resistance to any adaptation is surely illustrated clearly enough by more than twenty years of empty talk on reduction of greenhouse gas emissions while the science becomes ever more definitive and the consequences ever more extensive. And this is not just a problem for the USA; there is no move from growth by any government across the whole world

A common thread in these various discussions of alternative sustainable economies is the move away from the basic problem of a stressed physical world and oligarchic control to wish lists and hope for religion or human goodness or loving communes free from the constraints of mass civilisation. The supposed paradigm shift presented fails to answer the challenge of a vastly overpopulated world. The success of nation states and global enterprises has created impossible wants. That global system, and the evolution of so many mega-cities, provides the support systems for this burgeoning population (currently tripling in one lifetime). This mass organisation is both a necessity and the problem. The solution demands reorganisation at a national level, not splitting into a mass of separate villages. The resultant tribes would undoubtedly follow the age-old pattern, to the social inequality of rule by chiefs and intertribal warfare.

One basic issue here is of different concepts of freedom, of the conflict between the ability of the isolated individual to do as one wishes without any limitation forced by society versus collective wellbeing, and the freedom of others to prosper together in peace. There is no absolute individual freedom when living in a community. On one hand is the untrammelled freedom of the individual, on the other the freedom of choice of a group to join together under defined rules and to limit personal action. An extreme example was seen in early New Zealand. Tribal Maori leaders had the freedom to lead bands of warriors in attacks on other tribes – to kill, eat, rape and enslave. Warriors gave up their individual freedom as they conformed to their culture and obeyed their warlord chief. Those attacked lacked any freedom at all. An end to that mayhem came when some chiefs called on a greater power to enforce peace, knowingly giving up their own power in the process. The choice is always present. In this case, freedom to life itself for the weaker tribes required an end of freedom to pillage for the warriors.

A balance is called for among the conflicting calls for different demands for freedom. Does a society insist that each worker is free to make an individual contract with an employer, or do workers have the freedom to join together in collective unionised action to guarantee pay and conditions? Where is the balance to be between the right to keep all earned moneys and the need to tax and provide for the good of all?

Workers who join the union movement understand that for them unity is strength. Employers desire to maximise profits by crushing that power and reducing wages and conditions. This successful destruction of hard-won solidarity, reducing the right to collective organisation has been based on a selective and class-based definition of the concept of freedom. That is why members of the oligarchy have supported the atomisation of the nation with racial differentiation so that in New Zealand the nation is proclaimed a partnership rather than one people.

There is no absolute freedom, but rather a balance between conflicting demands. The requirement for a suitable social structure to permit the flourishing of freedom has been shown when its dismantling led to the destruction of true science – and the end of support for gathering information and forming an understanding of long-term trends to guide a forecast of what can be expected. I could only follow my science and raise such basic questions, challenging to the status quo, in a supportive society, and that has gone. Where is the freedom then in this ‘market’ of ideas?

As noted above, that conflict between different concepts of freedom surfaced during a 1976 workshops, when two divergent factions appeared and one group had to split in order to progress. Whereas new Group B came up with a set of ideas for the formation of around 400 largely self-contained communities of perhaps 10,000 people each, the breakaway Group C preferred “organic development based on people’s choice” and “the maximisation of personal freedom to choose consistent with the public good”. Similar tensions were found in other seminars, and were reported by participants in European research teams.

These issues are part and parcel of forecasting and planning. The contradiction between individual freedom (with the right to dominate and harm others) and the good of others is brought into sharp relief now when the world is full and great change is needed. When under extreme threat, Roman society of two millennia ago would elect a dictator to take full control. Has the world come to a similar desperate crossroads? Do difficult times call for tough decisions? I am forced to raise the question. Does the world need eco-fascism? I don’t like it, but the failure of our controlled democracy is all too evident. My solution of lazy socialism would fit the world of 1970 or 1980 but much stronger action is required as the 21st century evolves. When the extent of the crisis is faced, a political solution is a necessity; and if the current system is failing to respond, an alternative must be found. I no longer have an answer.

Meanwhile the security blanket of today’s world is too precious and the noted writers refuse to challenge the class to which they belong. This is the culture of the bourgeoisie, the great middle class that American presidential candidates appeal to, who have been brought up to believe in personal betterment above all else, ready to conform and believe anything if it helps to belong, be accepted, to flourish.

“I have not found the middle-classes against the new ideas, so much as anxious how they may be applied; but of course I am speaking of the less wealthy sort of middle-class person, such as we have at home.

Caz said that that was the word, anxiety was the burden of their lives, that had many other burdens too; they could not have the gay and lackadaisical carelessness of the poor, who, living from hand to mouth, did indeed take no thought for the morrow; they could not have this, because the set-up of their minds, even more than their incomes, was different; they so badly wanted to establish themselves and their children, and went to great lengths of self-sacrifice and hardship to do this; and if the idea of establishment was itself paltry and ignoble, about that way of life, and the sacrifice, there was something neither paltry nor ignoble, though shadowed and not free, as we should like people to be free.” [Smith 1979, page 105]

Meanwhile the storm is about us and the crisis is building.

* * * * *

Chapter: Foreshocks

The forecast is for a global crisis, the combination of a number of great calamities to create an enormous storm. That overshoot and decline of human numbers around 2030 will not come suddenly, unannounced. It will be the culmination of many trends, spread over a long time, that are increasingly evident as civilisation colonises and damages an entire planet. The many foreshocks that presage that crash then provide ready warnings of what is to come.

“A most probable scenario will suggest major changes at some time in the future, perhaps decades hence. However, most major changes will evolve in a gradual fashion, and spread over time in a wide bandwidth. The possibility then arises that a first impact will be felt in advance of the forecast date for the full event – perhaps being felt today or even in the past.” [Robinson 1998. The further references in this chapter are from that source.]

A number of examples of such foreshocks have been evident, such as the levelling off of oil production around 2005, the economic collapse of 2008 and the steady increase in greenhouse gases (together with the observed consequences).

The situation is complex, with interactions among the contributing factors – such as the oil price spike that preceded the economic collapse. Once the full picture is recognised, those events provide a ready test to forecasts and a further guide to the probable future.

“It is important to recognize here the complexity of many real life events. Major changes are frequently influenced by a diversity of causal factors. Thus the French revolution was preceded by poor harvests and loss of employment following the freeing up of trade with a more highly developed England, as well as the tensions of social inequality. And the full impact of the fourteenth century Black Death, when one third of Europe perished, was due to previous centuries of economic expansion with an increase in population and formation of cities, together with a cooling trend in climate which had led to a number of famines before the disease arrived. A combination of factors or an apparently unconnected development may set off a potentially unstable situation and force a rapid change.

Thus for some time before the forecast limit uncertainties, fluctuations and local developments can tip the balance, and foreshocks will be experienced. A forecast change may then occur as a series of happenings rather than as one easily defined and precise event. Apparently isolated events may be part of a more significant and global change.

This concept of foreshocks preceding each forecast event has the double consequence of extending the forecasts and of providing a test on forecast validity. The scenario writer may forecast a series of developments rather than a one-off crunch; and the occurrence of foreshocks will provide evidence that the process is under way and that the forecast event is probable (as a small earth tremor may be a foreshock of a major eruption or earthquake).”

An analysis of long-term trends will also illuminate current events and provide an understanding to aid realistic short-term planning.

“The comprehensive holistic analysis of futures research, including the combination of data and analyses from many disciplines as diverse as ecology, economics and history, and including recourse to complex global models, may then be relevant to the world of yesterday and today as well as to that which is yet to come. Futures research is then a most useful tool for immediate or short-term planning.”

* * * * *

Chapter: After the crash

As the new twenty-first century commenced, the idea of a coming crash came to blight my relationships, and I was shunned as a doomster. Perhaps, I thought, I could add a silver lining, find light at the end of the tunnel and write in a happy ending, and thus end my increasing isolation?

“Many commentators have been highly critical of the picture built up of probable developments to the middle of the twenty-first century, believing that I show very little faith in human nature or in the ability of human society to adapt and progress. The extension of the scenario outlined here has been an effort to consider whether a global crisis may be followed by a general renaissance and recovery, which might represent an improvement in general well-being.” [Robinson 2002. Unless otherwise stated, all further quotes in this chapter are from that paper.]

Just as any building needs firm foundations, a forecast of the coming decades, towards a half-century or more in the future, must be grounded on an appreciation of the past. While the current situation is new, in that the crisis will span the entire globe, the story of a civilisation in crisis is an old one that has been repeated many times throughout history.

“Thus a view towards the end of the next century requires the consideration of millennia of past experience.

The further analysis must then rely principally on history as a guide. The general pattern of historical evolution can then be combined with an awareness of major recent trends and of the impact of improved technologies and knowledge.

The major consideration here is whether global catastrophe may be followed by recovery and a renaissance of prosperous human society within a sustainable ecology (at a new and more modest level, given the destruction of much of the environment).

The choice of a comparable historical period is of the centuries surrounding the “calamitous fourteenth century”, a time of famine and plague in Europe. In the Black Death in the several years following 1347, between one-third and one-half of Europe perished. [Pirenne 1936, page 401 and Kurtz 1970, page 577] The disruption and conflict of that century have many resonances with our own time. The similarities have been noted and considered as *A distant mirror* by historian Barbara Tuckman. [Tuckman 1979]

The historical period following the Black Death has been characterised by a movement known to generations as the ‘Renaissance’ [Hodgett 1972, page 216], which commenced in Italy and spread to France and other parts of Europe. The rebirth of classical (Greek and Roman) thought and art has been widely considered as a progressive development which signalled the end of a thousand years of stagnation and the beginning of modern Europe. [Kurtz 1970, page 577] The Renaissance is often viewed as a key period which marked a transformation from dark ages into modernity.

‘To us, who see the two cultural complexes very sharply separated, it appears as if the receptiveness to the eternal youth of antiquity and the denial of the entire worn-out apparatus of the medieval expression of thought had come, like a sudden revelation, to everyone at once. ... As if the golden harmony of classical antiquity had suddenly stood before their eyes like a long-awaited liberation, and as if they had embraced antiquity with the joy of someone who had finally found his salvation.’ [Huizinga 1996, page 382]

Such a view is, however, too simplistic. In his seminal work, Huizinga questioned that widely held modern viewpoint.

‘But this was not the case. In the middle of the garden of medieval thought, between the luxuriantly growing old seeds, classicism grew gradually. ... The relationship between rising humanism and the dying spirit of the Middle Ages is much more complicated than we are inclined to imagine.’

Reference to the duration of the Renaissance shows that it was not a clearly-defined period; there was no immediate change from one period to the next. While one consideration of the medieval world continues into the sixteenth century [Hodgett 1972], a discussion of the Renaissance covers an overlapping period from around 1450 to 1620. [Hale 1993, page xix] The subsequent reformation has a clearer milestone of 1517 when Martin Luther posted his 95 theses against the

sale of indulgences on the door of Wittenberg Palace Church. [Kurtz 1970: 579] Hale's historical analysis of the Renaissance then commences within the Middle Ages and continues well into the Reformation.

Indeed the rebirth of classical Greek and Roman thought dates from an even earlier time, in the eleventh and twelfth centuries, and came to the West via Muslim scholars (Averoes and Avicenna) and Hebrew scholar Malmonides. Classical thought then influenced late medieval philosophers and theologians such as St. Thomas Aquinas who completed his 'Summa theologica' in 1273. The spread of naturalistic science underpinned Aquinas' work and the growth of the experimental method and the logic of science was established by philosophers such as Roger Bacon (1220-1292) and William of Ockham (1285-1349). Yet the change was most marked in the fifteenth century. It was then, according to most historians, that the major stages of the transformation, or rebirth of antiquity (renaissance), occurred.

However complicated the process, it appears that the catastrophes of the fourteenth century were followed by a lively rebirth of cultures which has seemed a veritable renaissance to many commentators, which marked the end of the Middle Ages and which set the scene for the Reformation and the modern world. Let us now examine that period and consider whether that picture is accurate, and whether a similar renaissance might be reasonably expected to follow the catastrophes forecast for the second quarter of the twenty-first century.

From Middle Ages through catastrophe to Renaissance

The twelfth and thirteenth centuries were a period of expansion, with economic growth based principally on the development of new technologies and the greater use of water power. This was an era when the economy was buoyant and growing trade required a larger volume of currency to finance it. [Hodgett 1972, page 104] The invention of the fulling mill in the late twelfth century has been regarded as instigating the industrial revolution of that time. [Carus-Wilson, quoted in Hodgett 1972, page 137] There was at the same time significant population growth and an increase in the number and size of towns.

The forms of economic organization were changing. For example, the medieval cloth industry in the closing centuries of the Middle Ages was becoming organized on a capitalist basis, with artisans in the different branches of the industry being dependent on entrepreneurs. [Hodgett 1972: 139]

That expansion was faltering by the beginning of the fourteenth century, as capital was in less plentiful supply towards the close of the thirteenth century, and the 200 years after 1320 were a period of down-turn in the economy as a whole. [Hodgett 1972, pages 100 and 212]

The weather pattern was also changing – a physical chill settled on the fourteenth century from its very start; the Baltic Sea froze over twice, in 1303 and 1306-7. A centuries-long warmer period came to an end, and the average Northern temperature fell around one degree centigrade during the fourteenth century. [Bryson and Murray 1977]

As is often the case, there were a number of concurrent trends and many significant events can be seen to overlap. Social change is frequently brought about by a combination of forces, sometimes set off by an event which acts as a catalyst on a system which is poised on the brink of change. (For example, the French Revolution was stimulated by the previous bad weather and resultant poor crops.)

The expansion was then faltering when the Black Death struck. Indeed, the growth period and urbanisation had set the scene for starvation and the spread of plague. The system was near its potential limit and collapsed under pressure. That catastrophic event was followed by a period of extreme disruption.

‘Nothing more bewildering and more full of contrasts can be imagined than the period extending from the beginning of the fourteenth to about the middle of the fifteenth century. The whole of European society, from the depths to the surface, was as though in a state of fermentation. ... the peoples were perturbed by social insurrections, excited by the hasty quarrels of the parties, or the prey of a general unrest which sometimes found expression in tentative reforms, and sometimes the oppression of the weaker classes by the more powerful. A spirit of restlessness that almost amounted to mental confusion.’ [Pirenne 1936, page 379]

The image of death, including the ‘danse macabre’ (dance of death) was ever-present. ‘No other age has so forcefully and continuously impressed the idea of death on the whole population as did the fifteenth century, in which the call of the memento mori [reminder of death] echoes throughout the whole of life.’ [Huizinga 1996, page 156]

The reaction to the fourteenth century plague had been one of terror and mysticism. During the Black Death bands of penitents moved about the country in ‘a sort of ecstatic delirium’. [Pirenne 1936, pages 400 and 401] Most people sought solace in magic and turned from reason, science and methodology. [Hale 1993, page 580]

The Black Death was followed by political and economic disorder and a crisis in the Church when the papacy moved from Rome and was then rent by schism, with two or more candidates claiming to be pope. While this period of upheaval may have led on to the development of humanism, a program of educational and moral reform based on an admiration for antiquity, and to the demand for religious change which inspired the Reformation [Rabb 1993, page xi], the more immediate reaction was disruptive.

The religious authorities reacted brutally against the new challenges. By the sixteenth century, inquisitors and censors were overworked and some 100,000 witches were killed throughout Europe. There was little emphasis on caring for the well-being of others in these times of adversity.

‘Between hellish fears and the most childish jokes, between cruel harshness and sentimental sympathy the people stagger – like a giant with the head of a child, hither and thither. Between the absolute denial of all worldly joys and a frantic yearning for wealth and pleasure, between dark hatred and merry conviviality, they lived in extremes. ... Throughout the literature and chronicles of the time, from proverb to pious tract, there echoes the bitter hatred of the rich, the complaint over the greed of the great. ... It is an evil world. The fires of hatred and violence burn fiercely. Evil is powerful, the devil covers a darkened earth with his black wings. And soon the end of the world is expected. But mankind does not repent, the church struggles, and the preachers and poets warn and lament in vain.’ [Huizinga 1996, pages 24, 26 and 29]

‘With its bear-baitings, judicial torture and witch burnings, and with rare exceptions its indifference to the welfare of peg-legged or chronically sick ex-servicemen, this was not a humanitarian age.’ [Hale 1993, pages 129, 446 and 474]

The courts of Europe lived in a fantasy world of complex symbolism and extravagant dress. The artificiality of the tournament reached new extremes, in a denial of the misery of the surrounding world.

‘The greater the contrast with the misery of daily life, the more indispensable the festival and the stronger the means required to bestow splendor on life by virtue of the ecstasy of beauty and enjoyment that lights up the darkness of reality.’ [Huizinga 1996, page 303]

Europeans took their brutal ways to other parts of the world as they explored and colonised in the late fifteenth century and thereafter. Cortes in Mexico and Pizarro in Peru brought death and destruction to the peoples newly ‘discovered’. In this, they continued the ways of their homelands.

The conquistadors were men trained in war, and their nobility were little better than armed and castled warlords. [Innes 1969, pages 9 and 12]

After the population decline of the fourteenth century there was a reduction in pressure on available resources. Less work was required for greater yields as only good land was cultivated. The standard of living and real earnings of the survivors improved despite the economic recession. [Braudel F 1981, "The structures of everyday life" in Volume I of Braudel 1981a, page 33] For a time some workers profited from higher wages, until new laws were introduced to bring the lower classes back into line. In the fifteenth century, the capitalism of the individual free from social controls became dominant. Guilds lost their previous power, there was a general lessening of constraints and greater inequalities. The proletariat appeared in the second half of the fifteenth century. [Pirenne 1936, page 531]

The population gradually recovered and grew again, leading to a recurrence of population pressures in the sixteenth century. Between 1500 and 1600 the populations of many major cities doubled or trebled – London had four times the population.

‘The result everywhere was shacks and noisome tenements, dark dens for ... thieves, murderers and every mischief worker ... as the growth in population pressed ever harder on the food supply, prices naturally rose and made life harder than ever for the poor.’ [Hale, page 456]

This brutal age which followed the economic downturn of the early fourteenth century and the ravages of the Black Death has little to recommend it, and few indications of a general renaissance or rebirth of society or popular culture. The familiar concept of renaissance has proved false. That positive view of this period derives from a modern focus on art, which presents an idealised and pleasant picture, far from the experience of most people of the times. The concept is one-dimensional, based all too often on developments in painting which provide a rather limited description, quite different from that derived from other sources.

‘French-Burgundian culture of late medieval times is best known to the present age through its fine art, most notably its painting.’ This is a modern development: just fifty years ago, ‘the average educated person knew those times primarily through their history. ... The image that came from these sources was grim and somber. The chroniclers themselves, and those who dealt with the subject during the Romantic period of the late nineteenth century, allowed the dark and repulsive aspects of late medieval times to emerge; its bloody cruelty, its arrogance and its greed, its lust for revenge and its misery. ... And now? Now that age basks in our perception in the lofty, dignified seriousness and the deep peace of the Van Eycks and Memling [painters of the period]; that world half a millennium ago appears to us to be permeated by a splendid light of simple gaiety, by a treasure of spiritual depth. The formerly wild and dark image has been transformed into one of peace and serenity.’ [Huizinga 1996, page 294]

Paintings were designed to please, to turn the attention away from the travails of the times. The picture provided is false. The hope that a brighter future following a time of catastrophe might be supported by the past history of the European Renaissance of the fifteenth century has been destroyed. The time scale for change was one of centuries. There was little positive reaction amongst the leaders of society, but rather an escape into artificial and extreme fashions. There was a withdrawal into mysticism and little evidence of any ‘scientific’ debate or any appreciation of the causes of the disruption.

The Renaissance as a rebirth of society has proved to be a chimera, a figment of the modern imagination. Nothing had been learned.”

Once the facts were in, the rose tinted glasses were taken off and the clouds had cleared away, my hopeful effort to suggest that rebirth, an optimistic outcome, might flow from the global conflagration, failed. History told a different story.

“As will be evident, a scanning of history together with an appreciation of major current trends has led to the conclusion that the disruption may continue for centuries. There is no indication that the forecast global catastrophe would lead to an awakening of general awareness, to an emphasis on collective quality of life, or to an awakening of genuine empathy for the environment and for other life forms.

It is a bleak picture which emerges. The question must be considered whether this exercise, with its painful outcome, should be attempted at all. Am I justified in putting aside my ‘faith in human nature’ or belief in progress, and looking so coldly and rationally on future expectations?

This comment is such a frequent criticism of my work that it cannot be ignored. The suggestion that we should attempt to be ‘positive’ and optimistic is of considerable importance, for it brings into question the scientific enterprise of futures research – and, as a scientist by inclination and training I cannot but rely on reason rather than emotion. I prefer to seek the truth; it is only by recognising the magnitude of the impending catastrophe facing us that we may hope to develop a suitable response. I do not believe that a work such as this should offer hope, when none is in sight. That would be less than honest.”

So I was not to come in from the cold. The very hope that recovery might be reasonably expected to follow on the heels of massive disruption reflects a common trait of popular human thought, which is to see the future as opening up before us despite the wretchedness of the past. This is the rainbow of *The Wizard of Oz*. My historical study had commenced with a very common hope of better times to come. In the words of reporter and writer Ambrose Bierce, whose experiences during the American Civil War had showed him the brutality and foolishness of human affairs:

“FUTURE: That period of time in which our affairs prosper, our friends are true and our happiness is assured.” [Bierce 1906]

Reality tells us that a bright new dawn is not born from such happy expectations as the messages of the past are continually forgotten – as pointed out by philosopher Georg Santayana and historian George Hegel.

“What experience and history teach us is this – that peoples and governments have never learned anything from history, or acted on principles deduced from it” [Georg William Friedrich Hegel 1837]

“Those who cannot remember the past are condemned to repeat it.” [Santayana 1905]

Surely this was the case in the terrible twentieth century, which saw more deaths in war than at any time in the past, including the extremes of two massive worldwide conflicts and the explosion of the newly discovered super-weapon, the atom bomb, over civilian populations. [Hobsbawm 1994] Global rivalry and conflict bringing international and civil war continues unabated today, with the economic impetus hidden behind religious conflict.

“The growth of cities and the increased population put the European system under extreme stress during the fourteenth century. It is so with the entire world today. The unchecked advance of capital, detached from national controls or cultural restraints, may bring demographic explosion, ecological hazard and economic disorientation and social anomie; and political impotence to deal with any of these.”

The direction that society had taken in the years leading up to the depression of 1929, 1933 and thereafter raised many concerns and a number of writers feared for the future. Some 80 years ago Aldous Huxley wrote *Brave new world* [Huxley 1932], in which he described a future of universal imbecile chemically-driven happiness. This is a benevolent dictatorship: a static, efficient, totalitarian welfare state. To maintain the World State’s command economy for the indefinite future, all citizens are conditioned from birth to value consumption with such platitudes as “ending

is better than mending.” The drug, soma is a very one-dimensional euphoriant, which gives rise to only a shallow, unempathetic and intellectually uninteresting well-being. The drug heightens suggestibility, leaving its users vulnerable to government propaganda. Soma is a narcotic that raises “a quite impenetrable wall between the actual universe and their minds.” There is now a much wider array of drugs available, both legal and illegal. Despite a sense of rebellion, the drug-taker is only coping with social anomie and is no challenge to the status quo.

In 1945 George Orwell expressed his concern with the control of society in *Animal farm* where inequalities are explained away by the slogan “All animals are equal but some animals are more equal than others.” [Orwell 1945] This was followed in 1949 by *Nineteen eighty four* [Orwell 1949], another picture of a controlled future where privacy has been banished and, wherever you are, “Big brother is watching you.”

Much of that warning has become today’s reality. For example, on a postcard that shows the sign on a house: “George Orwell, 1903-1950, NOVELIST & POLITICAL ESSAYIST LIVED HERE” with a yellow triangle on a pole in front that reads: “24 HOUR CCTV RECORDING IN OPERATION”.

Orwell emphasised the importance of freedom of thought, for “Who controls the past controls the future, who controls the present controls the past.” The concept of ‘doublethink’ – the power of holding two contradictory beliefs in one’s mind simultaneously, and accepting both of them is familiar to us today. Orwell further described an inability to relate to reality to as ‘crimestop’, which means “the faculty of stopping short, as though by instinct, at the threshold of any dangerous thought. It includes the power of not grasping analogies, of failing to perceive logical errors, of misunderstanding the simplest arguments ... and of being bored and repelled by any train of thought which is capable of leading in a heretical direction. Crimestop, in short, means protective stupidity.” [Referenced by Tuckman 1984 and Robinson 1989] We are constantly told today that the young have a shorter attention span than previous generations, but perhaps that is deliberately produced.

The Great Depression, which set in with the stock market crashes of 1929 and 1933, gave birth to fascism and World War Two, with the continuing struggle for global hegemony as Germany fought to conquer the other central colonial powers of Europe. Then, and now, the forms of international power differ little from those of the past. This neo-colonialism, the new form of the previous colonialism, is still sending in the gunboats to crush opposition. The struggle for hegemony, to be the top dog, in control and the one to reap the profits, has continued through the Cold War to the dominance of the current superpower, the United States of America, which asserts its privatised liberal free market capitalism within the framework of an imposed ‘new world order’, often by military means. Talk of democracy and freedom is empty spin as brutal regimes are supported against the people and regimes that displease the Americans and their European allies are destroyed by military might, sometimes by breaking the paper-thin cover of United Nations sanctions. That story covers the entire period of my lifetime, from Vietnam through to Iraq and Afghanistan and current (2012) threats against Syria and Iran – and so many others. International law has become inoperative, as the USA carries out kidnappings and torture, illegal imprisonment, attacks of undeclared war on sovereign nations, and – the ultimate horror showing the true ‘benefits’ of modern technology – the killing of peoples in many countries by unmanned drones controlled from within the USA. Warfare has surely advanced, from killing personally with spear or sword, to killing at a distance with bow and arrow or rifle, to killing anonymously from far away with an airborne bomber or finally a rocket where no person is directly involved, but not for the better.

The idea that global collapse may lead to the opening of many eyes and bring a better world has always been suspect. In the twenty-first century that hopeful attitude is ridiculous.

* * * * *

Chapter: Triumph of growth and private ownership

A scan of the past forty years provides a clear message of what to expect as the crisis deepens and the wave breaks. The tide of global concern that expanded during the decade of the 1970s was running out by 1980. There was always a basic contradiction at the heart of the Club of Rome, as in many such concerned establishment groups. The idea of a new paradigm was a challenge to a whole way of life, and the majority of people who had profited from that system and gained recognition and reward were loath to ask for its downfall and so withdrew into displacement writings, hoping for a change in human beliefs and universal behaviour (leaving their positions secure) or asking for a division into separate communities. Meanwhile the groups who most controlled and profited from the inequality of modern capitalism faced and overcame the challenge to their position. One consequence has been the extraordinary increase in inequality – three decades ago the average American chief executive made 42 times as much as the average worker; today this ratio is 380.

The conquest was most marked in the ‘Anglo-Saxon’ countries; in 1979 Margaret Thatcher (“there is no such thing as society”) became Prime Minister of Great Britain, and in 1981 newly elected President Reagan discarded the thoughtful global report commissioned by former President Carter [Barney et al 1982], throwing all such concerns into the dustbin.

New Zealand, a periphery nation and a follower of fashion, was not far behind. A Commission for the Future had been set up in 1978, when some politicians had sensed that all was not well with the way things were going. At its very inception the people working for and with the Commission realised that any effort to do their job properly, to explore alternatives and identify problems with current policies would make those politicians uncomfortable, and the Commission would then be shut down. By 1982 the Commission was developing its work, moving along the learning curve and producing results, and was closed – as predicted.

What happened next in New Zealand was dramatic, a parliamentary coup and a revolution that broke with the previously accepted balance of the mixed economy, which had produced, and relied on, a successful cohabitation of private and public ownership. In 1984, the Labour Party, fronted by the foolish puppet, smart-talking David Lange, won a snap election. There was inadequate time for the usual policy debate, and voters went to the polls believing that they were voting for the Labour Party of old. After all, the first Labour government of 1935-49 had introduced a wide range of social provisions in health, housing, income maintenance and social security which taken together formed the Welfare State. The situation of the urban working class had then been significantly improved.

However, having helped to engineer a foreign exchange crisis, the new government proceeded to break with Labour Party tradition and to outdo Thatcher in the destruction of the state. There was some struggle within the Labour Party, with opposition from the Party President Margaret Wilson (the previous President, Jim Anderton, had entered parliament that year, where he was critical of the new direction, finally leaving to form the New Labour Party in 1989). The power was, however, with the Cabinet cabal.

“In 1984 New Zealand elected a Labour Government. Traditionally this was the party of the left, of strong welfare and government activities, of good working conditions and for the rights of the

employed. But not this time. The party was captured by a group of neo-conservatives who led a far right revolution.

New Zealand has no balance of powers, particularly with the then first-past-the-post electoral system. Party loyalty is tight. When one party governs alone, a small and determined group can control the whole country. Those with control of Cabinet define policy. The party caucus then falls into line, and the majority in the one house guarantees that legislation will pass. It is to the eternal shame of Labour that so many MPs buckled under and voted following orders without thought for what they were doing, and that so many potential voices kept quiet from misplaced loyalty to a party or fear for their positions.” [Robinson 1996, page 20]

“New Zealand’s small population, unitary Westminster system of government and institutional simplicity suggest it is likely that economic policymaking is dominated by a small number of individuals based in key institutions. ... the key to understanding the New Zealand experience is to see economic policymaking dominated by a small number of key members of institutional elites largely from the Treasury, Cabinet, the Reserve Bank and the Business Roundtable. ... The lack of debate and consultation may have contributed to the poor quality of a number of decisions. In a country that strongly values political participation and had traditionally made policy in a consultative manner, changes imposed in the face of public opposition, often in secret and despite explicit election promises to the contrary, led to the undermining of the legitimacy of the political system. ...

Members of the cabinet, along with ministers outside cabinet and the parliamentary whips, can sometimes be as much as half of the ruling party in what was (until recently) a two party system. Along with strict party discipline, this gives the executive decisive power in determining policy directions and legislation, so much so that the New Zealand system has been described as an elective dictatorship.” [Goldfinch S 1998, with reference to Mulgan 1992]

The takeover in a well-planned parliamentary coup had been made possible by three supporting groups (a parliamentary cabal backed by a few party members, Treasury, and far-right think tanks), and the linkages between them. A few branches of the Labour Party, in particular the Princes Street Branch near Auckland University, were active supporters of neoliberal ideas, and many academics were fascinated by the new theory. One key initial figure was historian Professor Jim Holt, who was relied upon for advice until his early death in 1983. Holt had gained his doctorate at conservative Harvard University in Cambridge, Massachusetts, at the time when I was a couple of miles down the road at MIT. He was a gentle person whose championing of harsh far-right ideology has always puzzled me.

Treasury was packed with followers of the Chicago School of free-market ideology, and the support of this most powerful government department was assured. The planning was carried out under the influence of the Mont Pelerin Society, an international organisation concerned with the “menace” of “current tendencies of policy”, which “have been fostered by a decline of belief in private property and the competitive market”. They oppose collective action, other than any that will protect their interests and their freedoms – “for without the diffused power and initiative associated with these institutions it is difficult to imagine a society in which freedom may be effectively preserved.” [Mont Pelerin Society website]

“At the center of the web of individuals, banks, and companies knowingly perpetrating the evil, is the Mont Pelerin Society, an international network of ‘free market’ swindlers, serving the interests of City of London and British Crown-connected financial circles.” [Baker 1997]

Members have included Roger Douglas (Labour Party Finance Minister 1984-1988, architect of ‘Rogernomics’), Ruth Richardson (National Party Finance Minister 1990-1993, architect of ‘Ruthenasia’), Sir Ron Trotter (Chief executive of Fletcher Challenge and chairman of the Business

Roundtable), Roger Kerr (executive director of the Business Roundtable and the chief brains behind a cabal in Treasury known as “Economics II,” which clamored to “open” New Zealand’s economy – Graham Scott [later to become Treasury secretary], Bryce Wilkinson, and Rob Cameron) and Alan Gibbs). The post-election Treasury briefing paper came to guide subsequent policy.

“Under Mont Pelerin member Kerr’s direction, the ‘Economics II’ team of Scott, Wilkinson, and Cameron drafted a document known as Economic Management for the radical reforms which savaged New Zealand. ...

Economic Management called for, among other things, the devaluation and floating of the New Zealand dollar; the abolition of controls over interest rates and currency exchange; massive tax ‘reforms’, to benefit the rich; the abolition of tariffs, floor prices, and other protective measures for agriculture and industry; and the looting, through privatization, of huge sectors of the state. All this was carried out, and with stunning speed. Douglas described his method of ramming through unpopular ‘reforms’ in his book, *Unfinished Business*: ‘Do not try to advance a step at a time. Define your objectives clearly and move towards them in quantum leaps. Otherwise, the interest groups will have time to mobilize and drag you down.’” [Baker 1997, with reference to Douglas 1993]

The ten key principles that underlay the strategy also involved exclusion of the public (here called “vested interests”, which would include unions and Labour Party members), with policy defined within a closed circle – his “community”.

“Improve by quantum leaps. Moving step by step lets vested interests mobilize. Set your own goals and guidelines. Within that framework consult in your own community to improve detailed implementation.” [Robinson 1994, page 21, with reference to Douglas 1989]

This process was a close copy of the writing of the manifesto of the neoliberal wing of Thatcher’s British government, *No turning back*, by Madsen Pirie of the Adam Smith Institute. Officially, the authors of that document – which was published by the party – were MPs such as Michael Forsyth, Peter Lilley and Michael Portillo, but Pirie claimed otherwise.

“Nowhere was there any mention of, or connection to, myself or the Adam Smith Institute. They paid me my £1,000 and we were all happy.” [Pirie 2012, page 111]

The Adam Smith Institute was established in 1977 to promote market solutions to policy problems, and initially funded by “all the top companies”. It has been at the centre of several important debates that have preoccupied British parliamentarians for years, including reforming the National Health Service and British Rail.

“In his carefully crafted narrative, which at times more closely resembles a how-to guide for think tanks, Pirie reveals, in ways only a think tank insider could, how he and Butler have been able to cultivate strong and important ties to the media, to leaders in industry and commerce, and to key officials in the governments of Margaret Thatcher and John Major. However, as important as it is to gain access to the country’s powerbrokers, Pirie frequently reminds his readers that for think tanks to achieve policy influence, they must present the right ideas, to the right people, at the right time.” [George Monbiot, “Plutocracy’s boot boys”, *Guardian* 2nd October 2012.]

From the beginning, senior journalists on the *Telegraph*, *Times* and *Daily Mail* volunteered their services.

This is the crass selfishness and bullying tactics of survival-of-the-fittest fanatics Friedrich Nietzsche, Friedrich Hayek and Ayn Rand. All the wider fundamental issues of global concern – environment, population and inequality – were wiped from the slate as the mindless market was to rule, under the direction of a greedy minority. While a few fought back, more went along with the juggernaut. The nation failed to face the threat and suffered accordingly.

“The condition upon which God has given liberty to man is eternal vigilance; which condition if he break, servitude is at once the consequence of his crime, and the punishment of his guilt.” [John Phillip Curran, speech on the night of the election of the Lord Mayor of Dublin, 1790.]

In New Zealand, as elsewhere, the direction of policy continued through the following years.

“Through the unceasing torrent of ‘studies’ it [the Business Roundtable] commissioned from one Mont Pelerin think-tank to another, each of which called for an utter dismantling of the New Zealand economy, including all its health care and educational systems, Kerr’s Business Roundtable quickly became the Mont Pelerin Society’s powerful front group in new Zealand.”

While Douglas had been removed from his position in 1988, the transfer of power from Labour to National in 1990 brought another Mont Pelerin member, Richardson, as finance minister, and the privatisation continued in a seamless transfer. The wealthy, including members of Mont Pelerin, remained in control. (Indeed, the 2012 National government is pressing on with further privatisations.)

“Only six weeks after their election the National Government introduced the 19 December 1990 ‘Economic and Social Initiative’. Despite the election result being seen by some as a rejection of Rogernomics by the electorate, this 84 page document continued the macroeconomic disinflation begun by the Labour government.” [Goldfinch S 1998]

The profits from the new-found freedom to plunder the public purse flowed towards those with financial clout.

“And though it proclaimed its altruism, the Roundtable’s individual and corporate members were the overwhelming beneficiaries of the destruction of the economy which they so ferociously advocated. Firms associated with the Business Roundtable ended up with \$12.542 billion of the \$15.233 billion in privatized former state assets!” [Baker 1997]

The sale of state assets was considerable. Here is a partial list, to the end of 1990 when a number of further State Owned Enterprises (SOEs), including rail, were ready for sale. [Love 1991. I was uncredited consultant for several editions, including this in 1991.]

New Zealand Steel, for \$327.2 million in October 1987 to Equiticorp.

Petroleum Corporation of New Zealand Limited (Petrocorp), for \$801.1 million in March 1988 to Fletcher Challenge. Fletcher Challenge’s 1989 acquisition of four gas fields in Alberta Canada gave subsidiary Petrocorp entry to part of the vast, high performing Canadian oil and gas sector.

Development Finance Corporation (DFC), for \$111.3 million in June 1988. 80% was to National Provident Fund and 20% to New York based Salomon Brothers; a further \$45 million increase in capital was 20% to senior management and 5% to staff.

Health Computing Services, for \$4.3 million in November 1988 to Paxus Information Services.

Air New Zealand Limited, for \$660 million in April 1989; 35% to Brierley Investment Ltd, 30% to the public and Air New Zealand staff, 19.9 % to Qantas, 7.5% to Japan Air Lines Ltd and 7.5% to American Air Lines Ltd.

Post Office Bank Limited (PostBank), previously the Post Office Savings Bank, for \$665.4 million in February 1989 to the ANZ Banking Group (New Zealand) Ltd.

Shipping Corporation of New Zealand Limited (Shipping Corp), for \$35 million in April 1989 to ACT (New Zealand) Ltd, a wholly owned subsidiary of the Australian Company ACT, which is in turn owned by two British companies, Ellerman and Trafalgar House.

Landcorp, financial assets for \$15.7 million in March 1989, \$34.3 million in October 1989 and \$27 million in February 1990 to mortgagees.

Rural Bank, for \$625 million in August 1989, to Fletcher Challenge.

Government Printing Office (GPO) for \$23 million in June 1990 to Rank Group for the core business; with \$20 million of other assets sold separately.

National Film Unit, for \$2.5 million in March and September 1990 to TVNZ.

State Insurance Office, for \$735 million in June 1990 to Norwich Insurance (a British insurance company).

Tourist Hotel Corporation, for \$74 million in June 1990 to Southern Pacific Hotel Corporation (NZ) Ltd. The sale process started in 1988, and was delayed for some time by Maori claims and other difficulties.

Maui/Synfuels (the Crown shareholding in the Synfuels plant and Maui gas contracts), for \$80 million in July 1990 to Fletcher Challenge Ltd.

Forestry cutting rights, for \$102 million in July 1990 to Ernslaw One Ltd, \$262 million in July 1990 to Fletcher Challenge Ltd, \$383 million in August 1990 to Carter Holt Harvey, \$0.3 million in August 1990 to a consortium of NZ investors, \$115 million in September 1990 to Wenita Ltd, and for \$41 million in September 1990 to Nissho Iwai/Juken Sangyo.

Telecom, for \$4,250 million in September 1990 initially to American Technologies Corporation (Ameritech) and Bell Atlantic Corporation. The ultimate ownership structure was: Public (NZ and international) 40.1 %, Ameritech 24.95%, Bell Atlantic 24.95%, Fay Richwhite Holding 5.0%, Freightways Holding 5.0%.

Export Guarantee Office, for \$26 million in October 1990 to State Insurance Office.

The move to a free market ideology also brought the removal of the import controls that had protected many industries in this small market. Many companies collapsed and many jobs disappeared. The tax cuts transformed New Zealand from an egalitarian nation to one of great inequality. Payments to the unemployed, and those forced on to other benefits – such as sickness, disability and domestic purposes benefits – were cut in Richardson's 1991 "mother of all budgets". The damage has never been reversed and the inequality, unemployment and many consequences such as high rates of youth suicide remain. One ongoing scare has been with the increasing number of elderly, which is considered a threat to the economy rather than a great success.

Arrogant directions from central authorities, who foolishly believed that they know better about everything, forced the 'restructuring' of every aspect of public life. Reports from businessmen brought ruinous changes to education, health, science and all government departments. The Public Service ethic of service to the public was replaced by loyalty to the employer, the CEO, as "the principles of agency theory require that one person contracts the services of another to perform some service on their behalf which involves delegating decision making authority", and the CEO was contracted to have supreme authority over a department. [Robinson 1994, pages 57 to 70]

"The Public Service Act 1912 was designed to remove political patronage and to restore public confidence in government administration by establishing a politically neutral Public Service. ...

The 1912 Act worked well. The 1962 McCarthy Royal Commission on the State Services said: 'First, this country has been so well served for so long by loyal, incorruptible and politically neutral State servants that it may be inclined to assume that this is part of the natural order of things. There are many parts of the world where it is not so, and New Zealanders would do well to reflect on their good fortune.' That good fortune has been taken from us.

That system endured from 1912 up to the changes of the 1980s. The State Sector Act was a frontal attack on the position of the Public Service within the New Zealand system of governance.

Previously, permanent heads had tenure and were paid according to scales laid down by the Higher Salaries Commission. Now chief executives of departments are appointed on contract.

Formerly, permanent heads were appointed by a panel comprising the Chairman and one other member of the SSC together with three permanent heads selected from a group elected by their peers. Now appointments to chief executive are recommended by the State Services Commission (SSC) to the Governor-General in Council (effectively Cabinet); if the Commission's recommendation is declined the Governor-General in Council may direct the Commission to appoint a named person to the position. The final decision is political."

What happened in New Zealand had been developing elsewhere, as in the USA. Economists and MBAs (those with a master of business administration) ruled supreme.

"During the 1950s and 1960s publicists announced that American capitalism was in the throes of the 'managerial revolution'. A new cult figure emerged: the executive trained and certified in the dynamics and intricacies of organizing, administering, and exploiting power. Thanks to the role of business and law schools, a new component of a ruling class, educated in the ways of power and of innovation in its uses, was introduced, not only in businesses but throughout society, in university administration, philanthropic foundations, cultural institutions (museums, symphonies), and communications industry." [Wolin 2012, page 222]

Many activities have been taken over by these powerful Chief Executive Officers (CEOs). Science is taken from scientists, health from doctors and other professionals, education from teachers and other professionals – the list goes on. No longer do those with a deep understanding of, and commitment to, a professional activity guide their establishments. An MBA trumps all other qualifications when the overarching decisions are made, even though that training provides no understanding of these various and differing activities. This is a major element of "the truly profound change of the twentieth century, the dominance of corporate power". [Wolin 2012, page xiv]

Local communities across the country struggled against closure of local hospitals, destruction of councils in forced amalgamation and even tolls on main highways. That arrogance and the lack of respect for the professionals who had built and run first-class systems has continued through to 2012 with (for example) politicians forcing 'national standards' on the varied mix of schools across the country, despite the resistance of the teachers who work with the children, 'at the coalface'.

The process of 'restructuring' has been breaking apart functioning systems and destroying institutional memory as people with expertise and experience in their field have been replaced by management-oriented CEOs with no appreciation of, empathy, or loyalty towards their colleagues. Many in leadership roles come from elsewhere, in the new global workforce, headhunted to suit the political will, and having no familiarity with their new country.

This oligarchy, and its willing (and well-rewarded) servants, is international and vertically integrated. [Robinson 1996, page 20, section "The oligarchy is vertically integrated".] The now dominant ethos has spread from its central core to mould thinking and organisation at all levels, including local government and voluntary organisations, in many countries, from the centers of the USA and Europe to periphery nations such as New Zealand.

The loyalty of the New Zealand government was shown in September 2010, when there was an attempt to improve the conditions of workers in the film industry, as U.S. and international actors unions issued a public alert advising their members "not to accept work on this non-union production", the Hobbit. [Handel 2012] Warner Bros reacted with a threat to rip the troubled production from the country and studio executives flew in from Los Angeles like colonial masters ready to bring down the hammer. They then met with Prime Minister John Key amid fears the production could be shipped somewhere cheaper as local actors sought to firm up their working

conditions. The result was a defeat for the workers of New Zealand and a triumph for the studios as that government give the studios an extra subsidy of up to US \$15 million per movie for spending more than \$200 million, expanding the definition of what spending qualifies for the rebate under the existing rules, and changing employment law to classify all film workers as contractors by default. The world premiere in 2012 saw local government provide a further subsidy of several millions of dollars to this highly profitable industry.

I look back on the period from 1984 onwards with a feeling of utter bewilderment of the easy success of the attack on the welfare state and the Christian socialism of its founders, led by the very Party that had brought in that social advance. Now a slave-driving mentality dominates, with inequality and selfish 'innovations' lauded while hard work results only in economic stagnation and the misery of the many rejected. The concept of a good and secure life, of a leisure society, is dead and buried.

This has been class victory and the dominance of a narrow business ideology. Now that fear is widespread amongst those who might otherwise speak in opposition, conformity reigns. This is a nation of sheep, driven into a pen and required to strive in captivity within those walls, not daring to think of what lies outside that square, indeed not even understanding that the farmer and the dog are working together.

This captured nation is, like the rest of the world, held tight in the embrace of the modern media, a conditioning machine that operates within an illusion of editorial freedom. When wealthy entrepreneur James Goldsmith wanted a knighthood he bought the Times and changed the editor, to a person who held similar beliefs to his own. That editor had, of course, editorial freedom but by that one choice Goldsmith determined the politics of the paper. A grateful Harold Wilson provided a knighthood and he became Sir James. Ownership provides the ultimate control of the media, and the freedom then allowed is the freedom of like minds to follow like beliefs – chosen to conform with that of the puppet masters.

The media crisis is not due to incompetent or corrupt journalists or owners, but rather to a highly concentrated profit-driven media system that makes it rational to gut journalism and irrational to provide the critical reporting a free society so desperately requires. This media system does not result from the working of a free market. Rather, it is shaped by corrupt policies and subsidies made secretly by powerful corporate interests and, in the USA, their political bagmen in Washington D.C. and the state capitols. [Nicols and McChesney 2005] One consequence of cross-media competition, as opposed to monopoly, is to 'tabloidise' the media. Newspapers have become an explicitly commercial enterprise, resulting in the rise of sensationalism and the dumbing down of political reporting and reduction in investigative journalism from a much reduced staff of reporters. The reduction in the number of reporters overall means increased reliance upon public relations news releases as the basis for news stories. The process has partly been a matter of reducing intellectual and serious content. Meanwhile, television stations – formerly spread across a spectrum of seriousness, canvassing a variety of opinions – have become less and less differentiated.

The news media have internalized the notion that corporate power is largely benevolent, capitalism is synonymous with democracy, and the United States is a force for good in the world. Corporate malfeasance gets barely a mention, unless blatant transgressions affect investors, while stories involving governmental malfeasance, especially in programs intended to benefit the poor and working class, are stock-in-trade. The corporate media system is incompatible with a viable democratic public sphere. [McChesney 2008]

The resultant unity of thinking, with its implicit support for growth, guides national and global uniformity. Thus a fundamental feature of human society, to share a national culture, can block much-needed change when alternatives need to be found. That danger was recognised in a report

on the Fukushima reactor meltdown by a Japanese parliamentary panel who saw the accident as the result of collusion between the government, the regulators and the company. The commission's chairman said in a scathing introduction that cultural traits had caused the disaster.

“What must be admitted – very painfully – is that this was a disaster ‘Made in Japan’. Its fundamental causes are to be found in the ingrained conventions of Japanese culture: our reflexive obedience; our reluctance to question authority; our devotion to ‘sticking with the programme’; our groupism; and our insularity. Had other Japanese been in the shoes of those who bear responsibility for this accident, the result may well have been the same.” [Hyde M 2012. “We get the bankers, press and politicians we deserve”. The Guardian weekly 13 July]

Similar conclusions can be reached concerning other societies; the quoted report commented that “fundamental causes are to be found in the ingrained conventions of British culture: the worship of money by successive governments; our devotion to just bleeding tolerating it.”

New Zealand provides just one example of the remarkable centralisation of power and direction. A small number in Parliament, answering to wealthy lobbyists, has been able to take education away from educationists, health care from doctors, science away from scientists, local government away from the electorate. That corruption of democracy provides the answer to the otherwise puzzling choice of foolish policies.

* * * * *

Chapter: Oil and the dominance of the motor lobby

Throughout the twentieth century, oil and the motor industry – including personal mobility, and vehicle and road construction with their economic importance and considerable employment – have established a central place in developed societies. Security of supply has long been of significant geopolitical importance, as in both world wars. Thus the battle in 1942-43 for Stalingrad broke Hitler's determined effort to secure the oil resources in the Caucasus and proved to be the turning point of the war in the east. Later the Battle of the Bulge, fought over the winter months of 1944-45, was initially successful in breaking the Allied advance on Germany until the German forces stopped when they ran out of fuel.

Oil markets have long been dominated by and controlled by Western governments and corporations. While the USA and France, republics, and Great Britain, a constitutional monarchy – all democracies – claim to be champions of freedom, their governments and armed forces have always supported monarchs and dictators whenever business interests are at stake.

Thus when President Mosaddeq of Iran moved to nationalize the concession of the British-owned Anglo-Iranian Oil Company by the Oil Nationalisation Act of 1951, the American Secretary of State, John Foster Dulles and his brother Alan, Director of the CIA, decided, with President Eisenhower's approval, to overthrow Mosaddeq and reinstate the Shah of Iran. Mobs paid by the CIA, and the police and soldiers bribed by the CIA, then drove Mosaddeq from office in a royalist uprising. The pattern continues into the new 21st century, with armed attacks on Iraq and Libya, and a threatened attack on Iran. Each is an undeclared war on a sovereign nation, contrary to international law but each justified by some trumped-up excuse of the moment.

For a short time in the 1970s the major producers gained the upper hand.

“Many oil producers had long felt that their product was underpriced in a buyers’ market. OPEC (the Organisation of Petroleum Exporting Countries) had formed in 1960, but had limited success in increasing world prices for their product. The USA had ample reserves and could fill any shortfall.

Thus, when in 1967 half the flow of Arab oil to the West was shut off following the Israeli victory in the June war, the oil companies

‘mobilized the excess capacity of their non-Arab oil provinces (the United States, Canada, Venezuela, Iran, Indonesia), rerouted their fleet of tankers on the high seas, drew down their stockpiles, tempted the more vulnerable Arabs with the profits that could be had from secret defection, and waited for the boycotting challengers to grow fearful at the sight of markets being lost and to abandon their brothers one by one without notice and crawl back to their old places at the company table – as they did within weeks.’ [Anderson 1984, page 6]

By 1970, however, the USA had become a net oil importer. Although a 1956 forecast (Hubbert) had suggested that USA national production could keep up with demand only until around 1970, the warning that reserves were not infinite had been ignored. The forecast proved remarkably accurate. By 1970 the USA was no longer able to provide for its expanding demand and had become, like Europe and much of the world, dependent on supplies from OPEC.

‘The years 1970 and 1971 saw a fundamental shift from a buyers’ to a sellers’ market in oil, and in these conditions the producers were able to see that nothing stood in the way of their making further demands.’ [Field 1975, page 29]

That excess capacity which had been mobilized in 1967 no longer existed. There were flow-on effects which limited the possible reaction to any forced price rise by OPEC.

‘The sudden surge in American imports of Libyan and Middle Eastern oil – which before Nixon had been left largely to the European and Japanese markets – had created a new long-haul tanker shortage that was driving up tanker rates to new record highs (from 74 cents per barrel in April 1972 to \$4.09 in August 1973), making the Europeans and Japanese feel that they were paying an extravagant price for American indiscipline.’ [Anderson 1984, page 305]

Again a war (the 1973 Yom Kippur war between Egypt and Israel) provided the setting for further OPEC action. Oil prices had doubled between 1971 and 1973 as the producers began to assert their new power. The price was driven up at the end of 1973 by a further four times, with another increase by almost three times to follow later in 1979 to 1982. The price of oil has since drifted down, but remains at levels unthinkable before 1973.

The several energy crises created by the OPEC oil price rises provide a picture of the expected reactions of business and governments to future shortages. When a resource is needed and limited in supply, the producers can seize any opportunity offered to increase their profits. When our side does this, we feel that is only fair dealing within a global market; when others do it to us this is called holding the world to ransom.

OPEC could not get what they considered a fair price so long as the USA had ample supplies. The reduction in USA resources opened up a ‘window of opportunity’. War provided the setting for action.

The resultant massive shift in money flows fed into the global economy. Huge amounts of money slushed around, searching for a home where investments would be safe, and earn lots more. Many non-oil producing poor countries became poorer still.” [Robinson 1996, pages 109 to 111]

Both war and economic breakdown have accompanied the more recent oil crisis of 2008, as world production hit its peak and entered into a plateau stage. The considerable rise in the price of oil, from \$20 to \$30 a barrel in 2000-2004 to a peak of \$147 in July 2008, brought (as before) a huge

flow of petrodollars into the international financial system, which was spread around by risky loans that became untenable once that money supply was shut off after the price tumbled to around \$40 a barrel in January 2009. That swing in price, plunging downwards after a massive rise, and in the flow of moneys, brought down an already unstable financial system. The story of oil, with the power plays and conflict, bringing mobility to some, death and destruction to others, and with the considerable interplay between different sectors of the economy (here trade and financial flows), is a key element of the global picture. The description of the past is a prescription of the future.

Immediate economic and political demands have since been in conflict with global requirements for reductions in both oil use and in the production of greenhouse gas emissions. Great efforts have been made, particularly in the USA, to save car companies and financial institutions, and to reassert growth in oil production and use.

Motoring is similarly of great importance in New Zealand, where car ownership, at over 690 per 1000 population, is one of the highest in the world. [Robinson 2011a. Unless otherwise specified, all further references in this chapter are from that book.] Motor sports are popular. Around 13.3% of total household spending is on private vehicles. Funding for New Zealand roads is around 2% of GDP.

“The motor trade is a key part of the economy, making up one-quarter of all retail sales and around 4.6% of total employment. ... the transport and communications sector [including that trade] is 6.2% of total employment. ... Another sector that is dependent on extensive travel – resulting in the use of fossil fuels and the production of greenhouse gases leading to climate change – is tourism, which has boomed during the recent decades of cheap oil and increasing prosperity. Some 4.9% of total employment is in tourism, which contributes 3.8% of GDP. ...

A major part of the national economic life, and employment, is then dependent on activities based on the high use of oil and high output of greenhouse gases. The many people involved, and their organisations, will act to protect their interests. In doing so they will have considerable support from the population at large, and from government. Although tourism is highly profitable, it receives considerable subsidies from central government – a \$30 million boost will increase Tourism New Zealand funding to \$99 million in 2010-11. Then, according to Prime Minister John Key, ‘tourism will play an important role in helping us get the economy growing faster.’”

The motor lobby has been particularly successful in gaining access to public funds. Despite calls for reductions in spending and a loss of government jobs (almost 3,000 jobs were slashed between 2008 and 2012 as the government made cuts of \$1 billion worth of spending), land transport funding was promised an investment of \$8.7 billion in the three years 2009-2012 – “the largest transport investment in New Zealand’s history and a 17 percent increase on funding in the past three years.” One significant component is in roads of national significance. This programme represents one of New Zealand’s biggest ever infrastructure investments and is a key part of the Government’s national infrastructure plan, with expenditure of around \$3 billion in the 2012-15 National Land Transport Programme. Interestingly, transnational oil companies have considerable investments in roading construction.

The focus on roads, and away from social demands, will result in Wellington on a bizarre \$75 million underpass, digging up a newly built stretch of road and putting it underground in order to extend a war memorial with open space for memorial gatherings in honour of past wars – looking firmly backwards.

The motor lobby has crushed climate concerns or any question of the waste of valuable oil resources. Then too, estimates of greenhouse gas emissions are presented in such a way as to downplay the importance of the burning of fossil fuels. The estimates of emissions and take-up within the natural world (both of which are wildly uncertain despite being reported to six decimal

places) are separated and only the emissions are considered, thus downplaying the significance of fossil fuels – the very human activity that is at the heart of the predicament of climate change.

“The apparently high proportion of greenhouse gases caused by New Zealand’s pastoral farming, in particular its cattle and sheep, has distracted attention away from the greenhouse gases caused by our burning fossil fuels for cars and trucks. Our attention should be focussed rather on those human activities that have had the greatest impact in forcing to global warming and climate change.

The natural balance, which has evolved over many millions of years, has always included the emissions from animals and the take-up of greenhouse gases by plants – which also produce the oxygen that makes animal life possible – as well as emissions by volcanic activity and capture by the oceans. The natural world can adapt to modest change, but not to the enormous output of greenhouse gases produced over a couple of centuries by the burning of fossil fuels and the release of gases that have been locked up in the ground for millions of years. However the reporting of ‘all anthropogenic (human induced) emissions and removals of greenhouse gases in New Zealand’ in New Zealand’s greenhouse gas inventory has tended to downplay the importance of that overuse of fossil fuels.

The changes brought about by our actions are divided into five categories or sectors. Three of these – energy, industrial processes and waste emissions – are clearly produced by modern human activities. Two others – agriculture, and land-use change and forestry (LULUCF) – report changes to the natural world of living organisms.

The net emission estimate is the sum of all these sectors. ... However references to emissions most often refer to a different measure, of gross emissions, [which] include emissions from energy, industrial processes, solvent and other product use, and the waste sector, but do not include emissions and removals from the LULUCF sector.

Agriculture emissions [but not land use uptake] are included in these gross emissions. Emissions caused by direct human changes to the natural world are thus divided into two parts. One (agriculture) is emphasised and the other (land use and forestry) is ignored as a contribution to ‘emissions’. ... The gross emissions estimate does not include the sequestration by land-use and forestry.”

This matters. The ‘net’, total, measure shows that energy use is responsible for 70% of net greenhouse gas emissions. However, by ignoring the sequestration in the agricultural and forestry sectors and making use of the ‘gross’ measure, the picture presented suggests that energy-related greenhouse gas emissions account for much less, 43% of the total, while pastoral farming is a little larger at 46%. That presentation allowed government to focus on agriculture and ‘cow farts’ while leaving motoring untouched, indeed while increasing energy use and road construction.

In this arithmetic a cow in a field is divided into two parts. Cow burps and farts are emissions, included in the ‘gross’ measure while possible sequestration by shit on to the field is ignored, having gone into a different (LULUCF) sector. The uncertainties are huge – in some fields there may be considerable sequestration while in others the breakdown of wastes and the flow into streams may so great that the result may be a positive contribution to greenhouse gases. Estimates for forests are similarly extremely approximate, yet the figures are presented – wrongly – to six decimal places as if they had great authority, and then used to determine payments for carbon credits. This disadvantages the farmers, whose influence over government has reduced from their halcyon days, so that the president of Federated Farmers told me in 2010 that they were largely ignored by a government that listened only to lobbyists. (It is not possible to identify those with the ear of government, as New Zealand does not keep any record of lobbyists.)

Information is provided to government, and to the public, from biased sources. It has been pointed out above, and worth repeating, that the Energy Efficiency and Conservation Authority (EECA, the

organisation set up by the New Zealand Government to encourage, support and promote energy efficiency, energy conservation, and the use of renewable sources of energy) has a close relationship with the motor trade. EECA works with the Motor Industry Association, Independent Motor Vehicle Dealers' Association, Motor Trade Association, Automobile Association and individual vehicle manufacturers and traders. Gold sponsors are Nissan and Meridian, Silver sponsors include Honda. The EECA 2010 Biofuels & Electric Vehicles Conference subtitled "growing the market" included sales pitches by Nissan, Mitsubishi, Toyota and Meridian Energy. They, like other Government departments, rely on incorrect oil resource forecasts from the International Energy Agency (IEA). This is equivalent to a discussion of cigarette smoking led by tobacco companies.

In New Zealand, government agencies rely on the International Energy Agency (IEA) for information on global oil supplies. IEA have differed from many in their belief that the oil peak was far in the future, and even though this has proved incorrect, EECA continue to rely on their information.

"Consider for example the IEA 2000 forecasts for output and for price. [International Energy Agency World Energy Outlook 2000]

'Oil remains the dominant fuel, and, with 1.9% annual growth over the projection period, its share will be 40% in 2020. This is almost identical to its share today. The volume of world oil demand is projected to be some 96 million barrels per day in 2010 and 115 million barrels per day in 2020. [The measures of oil consumption given by the IEA differ from those of Figure 4, from the US Energy Information Administration (similar to those from several other sources). The comparison of the IEA forecast below refers to both forecast and actual figures from the same source, the IEA.]

The Outlook views the physical world oil-resource base as adequate to meet demand over the projection period. Although oil industries in some countries and regions are maturing, the resource base of the world as a whole is not a constraining factor. One need expect no global 'supply crunch'. To bring these resources into the market, however, will demand large and sustained capital investment, particularly in Middle East OPEC countries. This is reflected in the assumption that the international crude oil price is flat at \$21/barrel in today's money until 2010, but then rises steadily to \$28 through 2020.'

There have long been two divergent sets of expectations, with many forecasters suggesting an oil peak (plateau) in the first decade of the century coupled with price instability and overall price increases while officialdom has been lulled with suggestions of plentiful reserves for decades further. Such forecasts can now be tested. The result is clear; the evidence for the oil peak is dramatic and incontrovertible.

There was significant disruption to global oil production, and price volatility, in the 1970s following the USA oil peak. Then for some years production continued to increase. Production levelled off in 2005, remaining since (for five years and more) at a plateau of 72-74 MBD. [US Energy Information Administration website, <http://www.eia.doe.gov/aer/txt/ptb1105.html>. Similar useful graphs of oil production, as well as the growing gap between world oil discoveries and production, are found in www.theoil Drum.com/node/5395.]

Some forecasts based on this trend suggest that production may soon start to decline. This is possible, but production may remain around the present level for some further years; we don't know.

This is peak oil behaviour, not ongoing growth. Production at around 85 million barrels per day (the current IEA estimate) falls significantly short of the 96 million barrels per day forecast by the IEA for 2010 as the growth in output has ceased. Similar figures are found in many other references. [A similar plateau and peak is presented in <http://www.hubbertpeak.com/>. Further

information on the oil peak is available at www.theoildrum.com/node/5395 and many other websites.] There is no excuse for those who missed this plateau. The signs were clear in the 1970s when the general trend was broken following the USA oil peak and the subsequent changes in oil availability as the USA changed from exporter to importer. This allowed the OPEC price increases, which played a part in the subsequent economic turmoil.

Similarly the oil price has followed the path of increase and instability forecast by the oil peak analysis. The price of oil began to increase around the time of the commencement of the peak/plateau in 2004-2005 then hit a high of \$147 in 2008 before collapsing to \$35; the price in April 2010 is around \$85 a barrel and fluctuating (\$70 to \$80 in July). These prices are totally at variance with the IEA forecast of \$21 in 2010.” [Figure from http://www.wtrg.com/oil_graphs/PAPRPOP90.gif]

The lack of critical analysis is evident to anyone who takes the trouble to look.

“At a recent EECA conference [EECA Biofuels & Electric Vehicles Conference 2010, growing the market, Te Papa Wednesday, 21 April 2010] there were claims of a range of 160 km for both a Nissan Leaf (battery storage 24 kilowatt-hours of energy) and a Mitsubishi i MiEV (demonstration choice of Meridian in an empty showcase sales exercise [Broomhall N, National electric vehicles cost benefit assessment and 2009 pilot review, 2010. This showcase for the vehicle does not include any cost benefit assessment.], storage 16 kilowatt-hours of energy), with one presentation map claiming that such a vehicle could take passengers on a round trip for that 160 km from Wellington as far as Masterton. Other maps showed the 160 km circle out to Cheviot from Christchurch and Thames from Auckland. [Shinsuke Suzuki, Nissan’s global direction on electric vehicles and their suitability for New Zealand] The circles are for round trips; for example Masterton is just over 80 km as the crow flies from Wellington, 100 km by road. Given the added distance as the road twists and turns, and the energy cost of hills, the illustrations considerably exaggerate the potential ‘cruising range’.

There is a hill to climb across the Rimutakas between Wellington and Masterton, so I asked at that conference, in a room full of experts, about the true range. There was no clarification, just information from the floor that ranges are based on test-track trials. The range in the real world was not clear. My own reaction was one of frustration and, indeed, anger. Here was a meeting of some of the best experts in the country, willing to allow over-optimistic manufacturer’s claims to go unchallenged in a conference that acted as a sales-pitch showcase and not a scientific exchange of information.”

The desire to preserve the mobility provided by the private car (even while mobility has been so reduced by the crowding on the roads) is shown in the push for a new generation of electric cars. This is claimed to reduce greenhouse gas emissions, since much of New Zealand electricity generation is from ‘renewables’.

“In 2008 around 24% of electricity was from gas and 11% from coal. Some 56% of electricity came from renewable resources, mainly hydro and now wind. These are 2008 values; the generation varies from year to year depending on rainfall, so that when the share of hydro increases, the call on coal can diminish.

The 9% from geothermal is not included here within the renewable category for the simple reason that such energy is derived by mining heat from a rising column of hot water and steam. The lifetime of a typical field will be of the order of 60-120 years (with considerable variability dependent on physical characteristics and the rate of extraction). [Robinson 1977e] Since the Wairakei geothermal power station has supplied electricity to the national grid since 1959, 51 years ago, that particular source is probably half way to depletion.”

Estimates of the increased demand from electric vehicles vary greatly, being dependent on both the fleet that is to be replaced and assumptions concerning efficiency and mileages.

“It is estimated that if the entire New Zealand vehicle fleet were replaced with electric cars, the amount of electricity New Zealand needed to generate to power this fleet would be increased by about 60%. Only a small percentage of this electricity could be produced sustainably; the balance would probably have to be generated by burning coal.” [Matthew-Wilson 2010]

That is for the whole fleet. Replacing private vehicles only would require an increase of 23% in electricity generation. That light fleet is made up of cars, vans, utes, four wheel drives, sports utility vehicles (SUVs), buses and motor caravans under 3.5 tonnes. If the replacement is of cars only, with more efficient, small vehicles, the requirement is for an increase of 10-12% in electricity generation. [Robinson 2011a and Dirr 2008]

The suggestion to use a significant additional amount of electricity for cars clashes with the goal of reduction in greenhouse gas emissions.

“An increase in generation is already planned for, without electric vehicles. According to the Electricity Commission total demand is predicted to increase by 1% per annum to 2050, with residential demand growing by 60% and the industrial-commercial sector by 87%. [Electricity Commission, National Energy Demand projections April 2007] ... The suggestion to use a significant amount of electricity for cars sits uncomfortably with forecasts of increases in other demands at a time when the threat of climate change calls for a considerable reduction in burning of gas and coal.”

The electric vehicle is not a replacement for all private vehicles. Batteries take up considerable space and the cars are small and expensive. The batteries must be recharged, which would interrupt any longer trip. Overnight charging requires a connection to the mains within a garage and is not feasible from on-street parking.

Other alternative fuels are being pushed in order to satisfy demand for personal travel. Biofuels are less helpful than appears at first glance. On poor land it can take more energy to produce the biofuels than is provided. The energy return on energy invested (EROI) of various fuels varies considerably. The EROI of hydropower is above 100, that for wind turbines around 18, for solar collectors ranging from 1.6 to 6.8. The EROI on oil and gas has dropped as less accessible and less plentiful fields are tapped and drilling becomes more difficult, from above 100 in 1930 to 30 in 1970 and 11-18 in 2005. The questionable viability of sugar cane ethanol is shown by EROI values from 0.8 to 10 (most viable in optimal conditions), the marginal nature of corn-based ethanol by EROI values from 0.8 to 1.6.

It makes no sense to put a lot of effort into producing less energy than is used in the process, as when the EROI is less than one. Biofuels are most economically viable on good land in warm climates where several crops per year are possible, and have been replacing the growing of much-needed food in third world countries.

“There are many reports of abuse of workers, with many living in slavery as in Brazilian sugar cane plantations carved out of the rain forest, destruction of forests and displacement of peoples by jatropha farming in Paraguay and Ghana, palm oil plantations destroying forests, producing massive amounts of greenhouse gases, displacing peoples and driving food prices up in Indonesia and jatropha taking land and water in India, creating terrible poverty. The worldwide picture is stimulated by European and American subsidies, as wealthy peoples hold to their private car with little regard for the poor whose livelihoods are destroyed. The import of biofuels under such conditions is then unacceptable on both human and environmental grounds.”

In a 2012 drought, half the USA corn crop was in poor condition. Since the government had mandated that unleaded fuel had to be approximately 13% ethanol, demand was kept high. Prices “skyrocketed to an all-time high”, forcing up the price of corn-fed pork and beef. “I find it immoral to be turning edible calories poor people can’t afford into energy calories the wealthy can use to drive.” [Jenna Woginrich, “Feed people, not just cars”, Guardian Weekly, 10 August 2012]

Warnings of an oil peak and calls to preserve some oil for future generations and to reduce greenhouse gas emissions have fallen on deaf ears, as shown by new vehicle sales in New Zealand, even after Kyoto in 1990.

“The light fleet grew by 21 percent between December 2000 and December 2009. Ownership per capita of light vehicles increased significantly, from around 640 vehicles per 1000 population in 2001 to over 690 in 2005, after which the number leveled off.

Light petrol fleet fuel economy 2001-2009 changed little between 2001 and 2008 despite improvements in efficiency. The average light fleet engine capacity increased throughout this period, with the increase slowing in 2008 and 2009. The average capacity increased from around 2,060 cc in 2000 to around 2,420 cc in 2009. The engine size class showing the greatest rate of growth is 3,000-3,999cc, but the number of these vehicles is relatively low. The 2,000-2,999cc class has shown the most growth in terms of numbers of vehicles. The only capacity class showing a decrease is vehicles below 1,300 cc, which dropped by almost 30 % before leveling off in the past few years. The proportion of travel done by vehicles with engine sizes of 2,000cc or more has been growing significantly, as the typical engine has become larger; light fleet travel by larger vehicles increased from 39% in 2001 to 49% in 2008.”

The only brake on the growth of the vehicle fleet has been the increase in the price of oil from 2005 on and the post-2008 depression. There has been no call for reduction, no taxes or import controls on gas guzzlers. The market, driven by ever-present advertisements for yet more vehicles and the ongoing construction of new roads, is left in charge. Meanwhile the global crisis, including the eventual move from the plateau in oil production to reducing supplies, deepens and those who created the problems profit.

* * * * *

Chapter: Corporate fascism

The refusal of any consideration of the looming global crisis, with the emphasis on growth, profit and business entrepreneurs, was a warning of a steady drift towards control by a powerful minority, and by 1996 I was increasingly concerned.

“By 2020 New Zealand will be a fascist dictatorship. The foundations of the fascist state are readily seen in today’s liberal democracy which takes power into few hands, out of reach of popular democracy, and which glorifies the power-grabbing super-hero.” [Robinson 1996]

I am grateful to Paul Bieleski for pointing out that a modern form of fascism has actually been with us for some times.

“Fascism is an authoritarian state that controls all aspects of life including that of corporations. Fascists seek to organize a nation according to corporatist perspectives, values, and systems, including the political system and the economy. Fascism was originally founded by Italian national syndicalists in World War I who combined extreme right-wing political views along with

collectivism. The 'right-wing' description emphasises money, wealth, and ownership above social and human oriented objectives.

Fascists believe that a nation is an organic community that requires strong leadership, singular collective identity, and the will and ability to commit violence and wage war in order to keep the nation strong. They claim that culture is created by the collective national society and its state, that cultural ideas are what give individuals identity, and thus they reject individualism. Viewing the nation as an integrated collective community, they see pluralism and diversity as a dysfunctional aspect of society, and justify a totalitarian state as a means to represent the nation in its entirety. They advocate the creation of a single-party state; Fascists reject and resist the autonomy of cultural or ethnic groups who are not considered part of the fascists' nation and who refuse to assimilate or are unable to be assimilated. They consider attempts to create such autonomy as an affront and a threat to the nation. Fascist governments forbid and suppress opposition to the fascist state and the fascist movement. They identify violence and war as actions that create national regeneration, spirit and vitality.

Mussolini described his fascism as a single party state that incorporated corporatism into its rule. He said: 'Fascism should more appropriately be called Corporatism because it is a merger of state and corporate power.' A US academic has examined the various forms of fascism and described fascism's common features with 14 characteristics [see below]. We can see all these features in the US to various degrees, but with a difference. The situation in the US is better described as inverted fascism with the corporations incorporating the power of the state as the inverse of the past fascist model. This has been developed by ranks of lobbyists with their large staffs and monetary largess that is used to indoctrinate and finance senators and congressmen inculcating them with policies that suit the corporates. ...

Neofascism is the ultimate capitalism. The state is not just 'to make the world safe for General Motors' i.e. all capitalism; the state is an adjunct to capitalism, with democracy continuing as a veneer hiding the truth and mouthing the splendid rhetoric and theatricals of an American presidential election. It matters only so far as this adjunct is run, but does not touch the fundamentals." [Bielecki 2012, pages 24 to 26]

A similar point is made by Ruppert in *Crossing the Rubicon*.

"Benito Mussolini once said, 'Fascism should more properly be called corporatism, since it is the merger of state and corporate power.'" [Ruppert 2004, page 15]

While in old fascism the state rules the corporations, in corporate fascism the corporates rule the state. This corporate fascism has many of the aspects of old fascism. Lawrence Britt has examined the fascist regimes of Hitler (Germany), Mussolini (Italy), Franco (Spain), Suharto (Indonesia) and several Latin American regimes, and found 14 defining characteristics common to each. [Britt 2003] Most are familiar today, with the exceptions of sexism and disdain for the arts. The characteristics noted include: disdain for the recognition of human rights, identification of enemies/scapegoats as a unifying cause, controlled mass media (here by sympathetic media spokespeople and executives), obsession with national security (fear is used as a motivational tool by the government over the masses), protection of corporate power (the industrial and business aristocracy of a fascist nation often are the ones who put the government leaders into power, creating a mutually beneficial business/government relationship and power elite), suppression of labour power, obsession with crime and punishment, and rampant cronyism and corruption.

The modern form of fascism is class dictatorship by an oligarchy rather than the centralisation of power in one person. As such it is concealed from public view while the dance of directed democracy provides a useful screen. This new form of fascism – neofascism, inverted fascism, corporate fascism, the rule of the oligarchy or of the 1% – is the triumph of the global wealthy in

the current phase of the ever-present class war. The concept is similar to that of ‘inverted totalitarianism’, as described by Philosopher Sheldon Wolin.

“While the versions of totalitarianism represented by Nazism and Fascism consolidated power by suppressing liberal political practices that had sunk only shallow cultural roots, Superpower represents a drive towards totality that draws from the setting where liberalism and democracy have been established for more than two centuries. It is Nazism turned upside-down, ‘inverted totalitarianism.’ ...

While all empires aim at the exploitation of the peoples and territories they control, the United States is an empire of a novel kind. Unlike other empires it rarely rules directly or occupies foreign territory for long, although it may retain bases or ‘lily pads.’ Its power is ‘projected’ at irregular intervals over other societies rather than institutionalized in them. Its rule tends to be indirect, to take the form of ‘influence’, bribes, or ‘pressure’. Its principal concerns are military and economic (i.e., access to bases, markets, and oil). When policy-makers deem it necessary or expedient, domestic needs are subordinated to the requirements of global strategies and to the economic needs of Superpower’s corporate partners.” [Wolin 2008]

Unfortunately Wolin is afraid of his own shadow. He describes the idea of inverted totalitarianism as a “tendency” and not yet a reality, despite his listing of the nefarious activities of the Bush administration. He displays the myopia (lack of intellectual insight) common to American thinking, which continues to believe in a set of national myths – that the USA (despite its faults) is the very best democracy in the world, that the cold war began in 1947, that communism is evil and should be confused with fascism, that the USA is a nation of constant change. He does, however, make some good points, including the lack of real change under the first Obama administration, which “hastened to staff its councils with seasoned veterans of the financial world. Save for the huge sums involved and the brazenness of the giveaway, what could be more unchanging than the perpetuation of the cozy and longstanding relationship between Washington and Wall Street.”

Here is the triumph of the military-industrial complex warned against by retiring USA President Dwight Eisenhower in 1961, having since become the military-industrial-financial complex. In this neocolonisation phase of class war, which is taking place on a global scale, these groups are able to use national power and the military to assert their dominance across the globe. The previous ‘common fund’ proposed by Third World nations at the United Nations Development Programme (UNDP) has gone, replaced by an insistence on open borders. Excess capital has been used to capture nations, which are caught in the debt trap – after which the trans-national corporations insist on the sale of national infrastructure and support for banks and financial institutions while demanding austerity for others and destroying the lives of the citizens who are theoretically in charge of democracies. There has been a considerable capture of national policies as countries have to abide by rules set elsewhere, with a considerable loss of national sovereignty. It is not by chance that for several decades, in ‘developed’, ‘Western’ countries, the middle classes have struggled and the poor have been driven down in increasing numbers while the wealthy have profited and executive salaries have sky-rocketed. This is a naked assertion of raw power. The control of the oligarchy is global.

“The modern global village is feudal, with power increasingly taken away from democratically elected authorities. Neither government nor people have control as the captains of finance and industry have seized power.

Noam Chomsky has referred (in the Financial Times) to a recognition of a ‘de facto world government including the World Bank and the IMF, GATT, the World Trade Organisation, the G7 Executive, and so on.’ The list could well include the Trans-National Organisations which dominate world trade. Chomsky noted that this world system ‘has the very useful property that it

removes power from parliamentary institutions, which are considered dangerous, naturally, because they might fall, at least partially, under the influence of the rabble.’

This is a key development of our times, yet not one which receives much popular attention.

‘And just as this wasn’t news, neither is the growth of a new kind of world government. Unelected and unaccountable, it imposes its will through the great financial institutions: the World Bank, the IMF, the Inter-American Development Bank and the Asia Development Bank, GATT and the rest. It is the rise of these ideological constitutions and treaties that, in my view, pose the greatest threat to true democracy in the latter part of this century, and the next century. Today the IMF alone controls nations, through its structural adjustment programmes, more than the 19th Century imperialists could ever have imagined.’ [Pilger 1995]

There is no actual world government. There is no conspiracy led by some small group meeting behind closed doors to plot the future. Rather there are many people across the world who have immense power and wealth – and much excess capital – and who each follow their own self-interest. The benevolent hidden hand of Adam Smith does not operate; selfishness has bred selfishness which gathers and holds tightly to wealth. That wealth will never flow away from that ownership class and trickle down to the poor. The systems behaviour of the powerful – with each following individual self-interest – provides a strong conduit of moneys and power into those privileged pockets. They are linked by desires and ideology, and they cooperate to ensure further successes. ...

These are the Borgias of the post-industrial era. The world is becoming more tightly controlled by a faceless grouping of super-rich who owe allegiance to no country or philosophy. They operate well outside the control of modern democracies, wielding their immense power to protect and enhance their own self interest.” [Robinson 1989, pages 15, 16 and 94]

This global oligarchy is a comfortable club. The modern ‘entrepreneur’ is no isolated individual, following a lone star, and creating universal wealth by such enterprise. Just as each person desires belongingness, to be accepted and part of a community, fellow travellers and successful entrepreneurs belong to, are supported by and welcomed by, a like-minded class. Suitable performance is readily rewarded by a web of patronage in both the private and public spheres. Outsiders and critics are ignored or rejected, and drop away, failures within that social system.

The close linkages between government and corporates have been introduced previously with reference to the membership of the Business Roundtable and politicians from both major parties, Labour and National, in the Mont Pelerin Society. Reference was made to the three in Treasury who wrote Economics II, the blueprint for New Zealand Thatcherism, Rogernomics and the later Ruthenasia – Graham Scott, Bryce Wilkinson, and Rob Cameron. Their subsequent careers demonstrate the gains to be made from becoming members of the club.

Graham Scott became secretary of the New Zealand Treasury in 1986, and held that post until 1993. There he led the New Zealand public financial management reforms, including the move to performance-based budgeting. Among his many roles, he has served as Assistant Commissioner to the New Zealand State Services Commission and purchase adviser to the Minister of Finance in New Zealand. He has held positions as the Chair of Government Agencies in the health sector, Chairman of New Zealand’s wholesale electricity market, Chairman of the Expert Advisory Committee on the Regulation of the Gas Pipeline Industry in New Zealand, Chairman of the Advisory Committee to the New Zealand Electricity Authority on pricing of electricity transmission services, Chairman of the Committee to Review Policy Advice across ministries for Minister of Finance and other ministers, and Chairman of Taskforce to draft a law on Regulatory Responsibility for NZ Government. He has headed the Health Funding Authority and the Central Regional Health Authority. In 2012 Scott was the Executive Chairman of Southern Cross Advisers Ltd (UK), which

provides economic, financial, legal and management advice to governments and other clients and a Commissioner for the Productivity Commission. In the 2005 elections he was ranked fifth on the right-wing ACT party list as a candidate for Parliament.

Bryce Wilkinson moved into investment banking in 1985. He was a Director of Credit Suisse First Boston in New Zealand (now First NZ Capital), and set up, as director, economic consultancy Capital Economics Limited in 1997. He has been a member of the government's Regulatory Responsibility Taskforce, the 2025 Taskforce and the ACC Stocktake Group. He has been author of a number of Business Roundtable studies (including A Management Scandal? Interpreting Measures of Shareholder Value (2001), Constraining Government Regulation (2001), Restraining Leviathan: A Review of the Fiscal Responsibility Act 1994 (2004) and A Primer on Property Rights, Takings and Compensation (2008)) and an advisor on and contributor to many of its projects. Wilkinson was appointed acting Executive Director of the Business Roundtable in November 2011.

Rob Cameron is the Executive Chairman of Cameron Partners, a leading New Zealand investment bank, which he established in 1995. He has chaired the Capital Markets Development Taskforce, which made recommendations to Government. Major mandates at Cameron Partners have included advising the Independent Directors of Carter Holt Harvey in relation to the takeover offer from Rank Group Limited, the Board of Fletcher Challenge Forests on the sale of forest assets and the Crown in relation to the restructuring and recapitalisation of Air New Zealand. He has also led the firm's advice to a number of other major clients including Fonterra in relation to its long-term capital structure and NGC in relation to its asset disposals and strategic repositioning.

The politicians involved in the swing to the right similarly found well-paid work in private practice. Labour Finance Minister Roger Douglas has served on the boards of a number of leading New Zealand companies – he has been a Director and Chairman of Brierley Investments Ltd, a Director of John Fairfax Holdings Ltd, and a Director of Aetna Health NZ Ltd. He is Managing Director of his own group, Roger Douglas Associates, an international consultancy advising on economic restructuring and structural adjustment to clients around the globe. He has done a considerable amount of work internationally for the World Bank and private clients; countries visited include Brazil, Hungary, Canada, United States of America, Russia, Pakistan, Mexico, Austria, Fiji, the Philippines, Vietnam, Australia, China, South Africa, Hong Kong, Singapore, The Netherlands, England, Sweden, Japan, Thailand, Peru and India.

National Finance Minister Ruth Richardson established her own company, Ruth Richardson New Zealand Ltd., when she resigned from the political arena in 1994. The company offers both international consultancy and corporate governance services. Richardson has met extensive international demand to learn from the New Zealand 'reform' model. Her consultancy work takes place at three levels: international institutions (the World Bank, the United Nations, and the Commonwealth secretariat), sovereign governments (working directly with heads of state, ministers of finance and their senior officials), private institutions and think tanks (advisory assignments with private firms and private organisations with a public policy involvement or focus). Her long list of positions are as follows.

In agri-business: Director of Synlait Ltd. (Canterbury) and Synlait Milk Ltd., a Bright Dairy (China's largest liquid milk company) venture, former Chairman of Dairy Brands Ltd, former Director of Wrightson Ltd., New Zealand Merino and Oyster Bay Marlborough Vineyards Ltd

In bio-technology: former Chairman of ICP Bio.

In commercialising innovation: Chairman of Syft Technologies Ltd and investment committee member of the Pre-Seed Accelerator Fund.

In expert services: former Director of LECG Corporation, a law and economics consulting group.

In the financial sector: Chairman of the Kula Fund Advisory Committee, former Director of the Reserve Bank of New Zealand, former Chairman of Morningstar Pty. Ltd., Fiduciary Ltd., IMP Diversified Income Fund Ltd. and i-cap equity partners Ltd.

In public policy: former Director of the Centre for Independent Studies, an Australasian public policy institute based in Sydney, with a commitment to libertarian principles and the adoption of market style public policies, and member of the Mont Pelerin Society.

In sports apparel: former Chairman of Canterbury International.

In technology: Chairman of Jade Software Corporation and former chairman of British Telecom's Health Advisory Board.

In utilities: former Director of Trans Alta New Zealand Ltd., New Zealand's biggest electricity retailer prior to its takeover by Australian Gas and Light Company.

Richardson's National Party Prime Minister, Jenny Shipley, has business interests in China and is on the board of the China Construction Bank. In 2007, Shipley joined the financial services firm Source Sentinel, a leading global provider of equity release solutions for the elderly - "a retirement lifestyle enhancement concept known as the Home Equity Release Loan". Shipley is a director and advisory board member for a number of companies and organisations in New Zealand and elsewhere. She retains her interest in international politics through her involvement in the Club of Madrid, a group of former Presidents and Prime Ministers of democracies, which aims to "respond to a growing demand for support among leaders in two key areas: democratic leadership and governance; and response to crisis and post-crisis situations." While their website notes that "the social and systemic crisis are and will be considerable, if only because the response will inevitably require important political decisions", the political philosophy of this Club is difficult to determine through their listing of worthy-sounding non-specific goals. The strengthening of the global financial system and some form of global government is however clear in the European Perspective final declaration.

"The world cannot postpone creating an international financial architecture consistent with the deep interdependency of our globalized economy. The agenda should be broadened to include: the creation a truly global reserve currency, which could be based on the Special Drawing Rights of the IMF; the creation of institutional and effective mechanisms for macroeconomic policy coordination; the role of capital account regulations in the emerging system of financial regulation; the creation of a special court to mediate and eventually arbitrate disputes associated with over indebtedness at the international level; and enhanced international tax cooperation."

Thus the major architects of the new economics in New Zealand all found a ready place in the world of corporate private enterprise that they had supported. A number supposedly from the old left followed a similar path – the benefits can be considerable. Unionist Rob Campbell, a member of the Labour Party executive, was active in the governance 'reforms' following the 1984 election of the Lange-Douglas government. Campbell sat on a steering committee overseeing the sale of the NZ Post and the corporatisation of the government printing business. A directorship of NZ Post was his first major board appointment and the beginning of a new career as a professional director. His governance experience includes directorship to public and private sector organisations, including being Chairman of the Government Printing Office, Deputy Chairman of the Bank of New Zealand and being on the Establishment Board of New Zealand Post. He has sat on the boards of Ports of Auckland and ACC. In 2012 Campbell was on the boards of: Guinness Peat Group, Turners and Growers, Summerset Group (chairman), CallPlus, Murray and Co (investment bankers) and Silverfirm Co-Investment Partners (investment committee member), and is an investment director for the private investment and custodial business firm Tappenden Holdings Ltd.

Popularity with business can provide security if a politician should lose an election, in local as in national government, as when two former Labour Party candidates failed to be re-elected to the Wellington City Council, having lost popular support through their move to the right. Sue Driver became a consultant in areas of governance, management and evaluation, and in 2012 was a member of the Wellington Local Government review Panel. Alex Shaw has served as chair on a wide range of Boards within Crown Entities, Council Controlled Organisations and private industry. Both were appointed to the NZ Parole Board in 2011.

There is a considerable number of possible appointments by government, councils and business, to place favoured candidates in well-paid jobs. The choice is made from those who make a good fit, from among those who share the business ethic, and thus will exclude independent thinkers and critics of their ideology.

A key characteristic of the development of the global economy over the past two decades is the significant increase in the number of linkages among the boards of directors of the world's largest corporations. Social networks of this type facilitate the production and reproduction of general class policy and support belief systems about the legitimate role of corporations in society. Social networks among directors can operate in order to prevent pressure from investors and protect the private interests of a restricted control group in a firm. The two levels of power are, first, political as reflected in the clusters of industrial interlocking company directorates and, second, economic, in which the ubiquity of finance capital gives it dominance and control over the former. A small group of key directors are thus in a position of power to exercise power, control or cohesion cross many organisations.

The interlocking power structure, (links created by a director who is on board of more than one company or organisation) is an important dimension of corporate power, with industrial companies dominating the formation of top corporate social links. Interlocking directorates form a club and act to integrate the ruling class as a whole and to keep the class positioned advantageously in regard to its global objectives; the most heavily interlocked director is a ruling class leader who acts to ingratiate and integrate the capitalist class with the state.

The social network of directors within New Zealand (including the former politicians and Treasury officials noted above) forms part of a much larger international network. The large number of directors in the New Zealand network located overseas provides evidence of the international network creating global ties.

This section has focussed on the New Zealand experience. While this is of direct interest to the New Zealand reader, others will find a description of how a global process, largely initiated and controlled from central nations, has played out in this dependent and captured periphery country. The universal process is at work within a city of 150,000 (Wellington) and in a small country as much as in great nations.

The trace of a few careers provides a clear example of just who profit from the break-up of the state, from privatisation and from public-private partnerships. These include the individuals who destroy public organisations before taking up their rewards from corporations that have been handed the power to profit from previous public-good activities.

The linkages of patronage extend across the private and public sectors, in local as well as national government, including access to the powerful media and public relations industries. The Chief Executive Officers (CEOs) of local government, central government departments and State Owned Enterprises (SOEs) share the ethics and worldview of fellow directors in private sector. They belong to the corporate world and are no longer guided by the concept of public service. There has been a paradigm shift across so many sectors, including science, education and health, where the power of professionals to run their own affairs has been broken. Pay scales have gone out of

control, keeping in step in the two groups, with the salaries of the CEOs far above that of the previous directors and managers.

Money buys expertise. We all come into contact with examples. A school-friend of mine became wealthy while operating on the edge of the corporate law. He told me that when he was in trouble with the authorities he simply hired QCs (lawyers, Queen's Counsellors) to write screeds of material. Since the judge was required to examine all evidence, the case would drag on for years and eventually be settled out of court. Then there was Sir James Goldsmith who courted political favour by purchasing the Times and changing the editor – and thus the editorial policy. When he wanted to hire a promising youngster he flew him to Hong Kong where they stayed at the best hotel, to be wined and dined and treated to attractive young prostitutes. Most young men are readily seduced by that sybaritic life style, all too happy to join the privileged few.

The power of business groups is used to reward and publicise research favourable to their interests. Thus when in 1990 a Planning Council report suggested that full employment was possible within five years with no substantial change in policy, it was given nationwide publicity.

“The model suggests that faster rates of productivity increase will provide the fundamental basis for competitive expansions in output, employment and income.” [Rose 1990]

I pointed out that the employment figures used in that model failed to take into account the considerable decreases for 1968-1990, that the hope for increased productivity was unrealistic, and – most importantly – that the model was forced to produce an optimistic outcome by a massive injection of capital – “annual investment has to lift markedly from now on to support the required \$8 billion increase in capital stocks”. [Robinson 1990, quoting Rose 1990] The whole process was a sham, and indeed the forecast of increased productivity and employment later failed to appear. Yet while economist Dennis Rose was invited to speak at many events, I was ignored; there are no employment opportunities arising from criticism of corporate policy, whether it is accurate or not. Those who do not fit soon disappear from the story. Promotion is through recognition from a small group, the class that is the oligarchy, the 1%.

We all must make our way in the world. Politicians now form a professional class; instead of making use of a lifetime of experience, many start young and build towards a career after politics. It is clear where the best opportunities can be found – in the corporate world. Most are ignorant of economics and lacking in a firm set of values. They can be easily influenced by authoritative figures, such as Treasury mandarins and experts from OECD, the International Monetary Fund (IMF) and the World Bank, and remain ignorant of the widespread failure of those policies, just as Government, including their ‘professional’ agency the Energy Efficiency and Conservation Authority (EECA), continue to rely on the International Energy Agency (IEA), despite the failure of their past forecasts. There is a lack of awareness that such advice is skewed and that no economist can reach a prestigious position at any such organization without toeing the line. One senior OECD economist told me in an interview around 1976 that major global economic problems were a consequence of the financial problems that led the USA to move off the gold standard in 1971. Yet this was never discussed within the OECD and his comment was “you can't say that here”. Conformity is demanded for promotion.

It is always important to recognise bias in ‘expert’ advice. Many doctors are concerned that the information and advice they are given concerning what drugs to prescribe is often false.

“In their 40 years of practice after leaving medical school, doctors hear about what works ad hoc, from sales reps, colleagues and journals. But those colleagues can be in the pay of drug companies – often undisclosed – and the journals too. And the patient groups. And finally, academic papers, which everyone thinks of as objective, are often covertly planned and written by people who work

directly for the companies.” [Ben Goldacre, “The drugs don’t work”, Guardian Weekly, 5 October 2012]

As in medicine, so in economics, and indeed for the whole range of advisers and consultants, as throughout the media. The result of the control and conformity is a debate that adheres to the Dorothy Parker principle, as in a description of the acting of Katherine Hepburn, “she ran the whole gamut of the emotions from A to B”. Anything further, or deeper, is absent. As a result of a refusal to stray outside the bounds of the accepted box, the full story is not understood and the full range of possibilities is not considered. Despite the complexity of published papers, which so often analyse minute details, most are distant from the essential point and quite irrelevant.

The control of excess capital, the enormous flows of moneys across the global economy, has long dominated. The long-term economic Kondratieff cycle has moved from the expansion (growth) phase of 1945-1970 into a long stagnation, and since 2008 has begun the collapse into recession. Each cycle is set within, and affected by, the historical circumstances of the time. This cycle has a number of new features, which have produced a stagnation phase that, while unstable and punctuated by the growth and bursting of a number of bubbles, has been longer than during previous cycles. The growth of governments during the Second World War persisted with the welfare state and continuing militarism, both of which provided a degree of central control and continuing stable government expenditure. Global financial institutions were set up to control the international economy. This has not been a free market but a control economy. That control has held off the collapse and extended the stagnation phase, with its instability and many bubbles.

The development of a global oligarchy has been marked. Transnational Corporations (TNCs), operating outside any democratic national control, have flourished and the military-industrial-financial complex is dominant. [Robinson 1989] A number of efforts by developing countries to escape the grip of this octopus have been defeated. The previous support of the formerly powerful USSR, which offered an alternative to western hegemony, has gone.

The basic problem has been that of previous success until the growth period came to an end, and the resultant lack of investment opportunities for the extraordinary amount of excess capital. Those finances have been used to create a series of bubbles, to force the selling of public assets and to lead many countries to borrow until they are caught in a debt trap – and need to sell even more public assets. Governments are formed from politicians with little understanding of economics and in awe of authoritative experts. They are then only too willing to follow the advice of the lenders (with their backing of a range of international agencies), to keep taxes low and pay for both welfare and warfare with borrowed cash. In these stagnation and recession phases of the global economic cycle, the growth required to pay back those loans has not come, and will not come.

Of course the lenders share the responsibility for excess borrowing. Yet, such is their power that when the overburdened structure breaks apart the financial controllers are able to force policies of ‘austerity’ and the people suffer. Those who built the system use it to protect their own interests, and international institutions have a tight hold over national finances. Any downgrade will increase interest rates and the impact can be considerable. If (for example) the debt is around 100% of GDP and government spending is 40% of GDP, interest of 10% will require 4% of government revenues (with no repayment of the principle). Once the debt and the interest rate go higher, this will cripple a government that is already borrowing to fund basic expenditure.

Long-term interest rates (secondary market yields of government bonds with maturities of close to ten years) are determined by credit ratings based on the judgement of financial agencies. A yield of 6% or more indicates that financial markets have serious doubts about credit-worthiness. In October 2009, the yields on government stocks (the interest paid) for European nations were in the range from 3% to 5%. As the crisis deepened, the credit ratings and interest rates diverged. By

August 2012, the rates were 25% for Greece, 10% for Portugal, 7% for Spain and 1.5% for Germany. The average fiscal deficit in the euro area in 2007 was only 0.6% before growing to 7% during the financial crisis. In the same period, the average government debt rose from 66% to 84% of GDP. The Greek debt became 165% of GDP.

During the years of financial insecurity, personal debt also grew; during the five years preceding 2007, the ratio of household debt to income rose by an average of 39 percentage points, to 138 percent. In Denmark, Iceland, Ireland, the Netherlands, and Norway, debt peaked at more than 200 percent of household income.

One of the many financial bubbles was the “Irish miracle”, which was in fact based on excessive borrowing. When yields on Irish Government debt began to rise rapidly it was clear that the Government would have to seek assistance from the EU and IMF, resulting in a €67.5 billion ‘bailout’ agreement of 29 November 2010. Together with additional €17.5 billion coming from Ireland's own reserves and pensions, the government received €85 billion, of which up to €34 billion was to be used to support the country's ailing financial sector. In return the government agreed to reduce its budget deficit to below three percent by 2015. In April 2011, despite all the measures taken, Moody's downgraded the banks' debt to junk status. In July 2011 European leaders agreed to cut the interest rate that Ireland was paying on its EU/IMF bailout loan from around 6% to between 3.5% and 4% and to double the loan time to 15 years. The move was expected to save the country between 600–700 million euros per year.

Such assistance comes with a price. Recipient nations must follow prescribed policies, including the savage cutting of public programmes and reductions in employment in the public service. Democracy is crushed as international financiers (Harold Wilson's ‘gnomes of Zurich’) take control. While they tighten the screws, the dominant group increase their wealth and glorify their class mates as the ‘entrepreneurs’ of the day.

This is of course no solution at all. A stripped and beaten down nation can never grow and earn enough to repay the remaining debt. You don't build a business by selling it. Further collapse and social misery is assured. The obvious way forward for any country caught in this trap is to default and to start again. This has been a road all too often not taken and public anger against austerity for the middle and poor classes in the most affected European countries has been, thus far, ineffectual.

How is that compliance possible? The answer is in the considerable advertising, publicity and public relations industry that serves the consumer society and its rulers. Here, whereas brainwashing and conditioning by the state (either for perceived social good or fascism) is fought against, brainwashing by the corporate industry (inverted fascism) is accepted, welcomed and valued as a mainstay of modern society, as is corporate sponsorship of sports and the arts. Advertising breaks interrupt television and radio programmes (some are even given over to hours of ‘infomercials’) and covers buildings and buses with ugly messages. The call to consume is an ever-present feature of modern life.

This was seen as a possibility by Alexis de Toqueville when he wrote of the new republic, the United States of America, about half a century after its formation. [de Toqueville 1839 and 1841] He warned that “modern democracy may be adept at inventing new forms of tyranny, because radical equality could lead to the materialism of an expanding bourgeoisie and to the selfishness of individualism”. In such conditions “we lose interest in the future of our descendents...and meekly allow ourselves to be led in ignorance by a despotic force all the more powerful because it does not resemble one.” Tocqueville worried that if despotism were to take root in a modern democracy, it would be a much more dangerous version than the oppression under the Roman emperors or tyrants of the past who could only exert a pernicious influence on a small group of people at a time. In contrast, a despotism under a democracy could see “a multitude of men”, uniformly alike, equal,

“constantly circling for petty pleasures”, unaware of fellow citizens, and subject to the will of a powerful state which could exert an “immense protective power”. Tocqueville compared a potentially despotic democratic government to a protective parent who wants to keep its citizens as “perpetual children,” and which doesn’t break men’s wills but rather guides them, and presides over people in the same way as a shepherd looking after a “flock of timid animals.” [Notes from Wikipedia article on de Toqueville]

“I see an innumerable crowd of like and equal men who revolve on themselves without repose, procuring the small and vulgar pleasures with which they fill their souls. Each of them, withdrawn and apart, is like a stranger to the destiny of all the others: his children and his particular friends form the whole human species for him; as for dwelling with his fellow citizens, he is beside them but he does not see them....

Above these an immense tutelary power is elevated, which alone takes charge of assuring their enjoyments and watching over their fate. It is absolute, detailed, regular, far-seeing, and mild. ... It seeks only to keep [men] fixed irrevocably in childhood

Thus after taking each individual by turns in its powerful hands and kneading him as it likes, the sovereign extends its arms over society as a whole; it covers its surface with a network of small, complicated, painstaking uniform rules through which the most original minds and the most vigorous souls cannot clear a way to surpass the crowd; it does not break wills, but it softens them, bends them, and directs them.... it does not destroy, it prevents things from being born; it does not tyrannize, it hinders, compromises, enervates, extinguishes, dazes, and finally reduces each nation to nothing more than a herd of timid and industrious animals of which the government is the shepherd.” [Wolin, pages 79 and 80, quoting de Toqueville 2000 translation, page 663]

This is a remarkably prescient recognition of how, even in a democracy, people may be led to conform while a higher authority wields actual power. This is the oligarchy of corporate fascism, a disguised Big Brother. Here I differ from Wolin who denies that America has reached such a state.

“Instead of embracing Big Brother and submitting to government regulations most Americans want government ‘off their backs.’ Far from meekly living in a drab condition of equality, the United States is a land where success is richly rewarded, so much so that it is at least as notable for its striking inequalities as for its professions of equal rights and equality before the law. Far from being passive Americans are renowned for their drive and inventiveness.”

The “drive and inventiveness” claimed by Wolin are most notable by their absence in system that fails to prevent war or to provide the basic health care found in other developed nations. The process has been developing steadily for some time; in 1957 Poet Carl Sandburg saw the growth of a new opiate of the people.

“‘When we reach the stage when all the people are entertained all of the time, we will be very close to having the opiate of the people,’ he said. He attacked commercials which were filled ‘with inanity, asininity, silliness and cheap trickery’.” [Niven 1991, page 663]

The repetition of a message of consumerism, and the many claims of a special place of the USA with its falsely proclaimed democratic values have created a belief both in the perfection of their system and in the right of their country to dominate the world with its military might. The ubiquitous drumbeat is a standard method of brainwashing.

“BRAINWASHING

Repeat and repeat till they say what you are saying.

Repeat and repeat till they are helpless before your repetitions.

Say it over and over till their brains can hold only what you are saying.

Speak it soft, yell it and yell it, change to a whisper, always in repeats.

Come back to it day on day, hour after hour, till they say what you tell them to say.
To wash A B C out of a brain and replace it with X Y Z – this is it.”

[Sandburg 1969, page 679. From The Sandburg Range, 1950-1967]

A fully operative complex society, such as the mixed economy that was accepted as the norm in New Zealand prior to 1984, has many power bases. Most of those diverse actors have been under attack. The unions have been fractured.

“The decline of the unions has continued over several decades. In the period 1980-88 union density went down by 18.7 percent in the USA, by 18.1 percent in the United Kingdom, by 36.8 percent in France, and by 19.7 percent in Italy. The downward trend began before 1980 for some of the countries, but it was not until the 1980s that the decline became almost universal in the industrialised nations. In 1992, USA unions represented only 11.5 percent of the private work force, down from 35 percent 40 years before.” [Robinson 1996, page 60]

Ideas of equality or industrial democracy (which had been proposed in the 1960s [Emery and Thorsrud 1969]) have disappeared, with the rebirth of harsh employment practices. There has long been a sad imbalance between expanding capabilities and their application. In a complex many-layered society improved technology and efficiencies create opportunities – and a possibility for better living conditions for all. Unfortunately the extensive organisation involved also increases the power of the controller. Thus progress can be, and has been, misused. Power has passed from tribal chief to kings and national dictators, to international empires and now to a global oligarchy. The reduction of the masses to cogs in a machine has been carefully planned, and well documented, as ‘Taylorism’ and ‘Fordism’.

Just over a century ago, Frederick Taylor devised a means of detailing a division of labour in time-and-motion studies and a wage system based on performance. [Taylor 1911] Some of the main elements of ‘Scientific Management’ were time studies (e.g., screw on each bolt in 15.2 seconds) and standardization of tools and implements. This entailed the concept of task allocation, breaking each task into smaller and smaller machinelike tasks. That form of organisation was applied successfully by Henry Ford and was called ‘Fordism’ by Antonio Gramsci, who wrote further of cultural hegemony as a means of maintaining and legitimising the capitalist state assembly line. [Gramsci 1934]

Charlie Chaplin mocked the inhumanity of this mechanistic process in his film Modern times. [Chaplin 1936] The little tramp is a factory worker, one of the millions coping with the problems of the 1930s, which are not so very different from anxieties of the 21st century – poverty, unemployment, strikes and strike breakers, political intolerance, economic inequalities, the tyranny of the machine, narcotics. The film’s opening title, “The story of industry, of individual enterprise – humanity crusading in the pursuit of happiness”, is followed by a symbolic juxtaposition of shots of sheep being herded and of workers streaming out of a factory. Chaplin’s character is first seen as a worker being driven crazy by his monotonous, inhuman work on a conveyor belt and being used as a guinea pig to test a machine to feed workers as they work. The clock has been turned back to those times, with the destruction of the dignity of the worker and forcing struggling people to accept increasingly harsh demands from employers.

“A process is in place whereby welfare and pay levels ratchet down one after the other. If people will not get out and work because welfare is too high they must be encouraged by cuts in benefits, as was done in 1991. The lower benefit level then sets a benchmark for the minimum wages which are reduced. No matter that both provide less than a decent standard of living in a very wealthy country.

Meanwhile employers are highly critical of beneficiaries who will not join the work force for a loss of income. They hold that each person should keep busy, and build up self-esteem through work,

even when it is underpaid and not recognised as a real job, in the real work force. Any concept of worker's dignity, or of an honest day's pay for an honest day's work is gone. The poor are to work for the good of their souls. They must learn the work ethic as they are moved from one work scheme to the next. It is soul-destroying in practice." [Robinson 1996, page 144]

The obedience of soldiers to orders is required within the divisions of an increasingly unequal and aggressive society. The class war has never gone away. My childhood, like that of every person, was class defined. My father was a ship's cook. After long times at sea, and short periods in strange ports, he wanted a family life, a house to bring up children. When he married, my parents were able to bring up a family in a good home, with guaranteed social services such as free education and health care, with dignity in the workplace, with decent and steadily improving pay and conditions. All that came from the united action of the unions and from a Labour Government that acted on its socialist policies. Entrepreneurs gave us nothing; all that was good in life was torn from their hands by class struggle and electoral victory.

He had witnessed a small part of that struggle when in 1919 he (my father, Len) was on a ship taking troops to attack the new Russian government.

"Our trip to Archangel was a long and cold one, though I must say a very interesting one. After arriving in Murmansk we found that the quickest way to get to Archangel at that time was by sledge and so we decided to come overland, the ice in the White Sea being so bad as to prohibit the passage of any boats. The story of our trip by sledge is a long and varied one so I will have to postpone telling you about it until my return to London. ... Have heard nothing of Len's boat yet but will be on the lookout for him."

This is from a letter written by cousin Allen Robinson of Honolulu to my Aunt Ethel. He was in the USA Army at the time. Archangel is in Russia, on the southeast corner of the White Sea, far to the north of Moscow; Murmansk, also in Russia is to the northwest of there, to the east of the border with Finland. He was with soldiers fighting against the USSR government, and my father was serving on a ship bringing more troops.

The Allied war of intervention was a multi-national military expedition launched in 1918; its operations included forces from 14 nations. Eventually the deteriorating situation compelled the Allies to withdraw from North Russia and Siberia in 1920, though Japanese forces occupied parts of Siberia until 1922 and the northern half of Sakhalin until 1925.

That war of intervention was the start of the enmity between the USA and the new communist regime. The attack by the West on communism in the USSR was not born with the Cold War in 1947; the Cold War was the continuation of an ongoing class enmity and the threats from the West had led the Russians to make a short-lived non-aggression pact (1939-1941) with the Nazi regime, to buy time in a hostile world.

The Cold War was part of a struggle between extensive private ownership and community control that has spanned many centuries. Just as royalists fought against democracy and republicanism in the French revolution, the West was quick to attack the fledgling state.

The Russian revolution was a true paradigm shift. Change may seem easy when it does not challenge the oligarchs or when it is in their interests. But revolution is no picnic when it challenges the major power. The retribution of the displaced oligarchy is often terrible, as witnessed by the slaughter after the Paris commune, by Chiang Kai Shek's killings when he turned against the communists in 1927, by Franco's forces in Spain and by the disappeared in Argentina and Chile more recently. A paradigm shift, when resisted, may soon turn into the hell of war.

The dictatorship of Stalin was one outcome of the many attacks on the new government of Russia. Feelings of insecurity, of traitors threatening the regime and counterrevolutionary insurrection were

not imaginary, but were real life experiences. The resulting fear was answered with terror. A number of revolutions have followed that progression from national leadership to dictatorship, including the assertion of power by Caesar in Rome and by the Emperor Napoleon in France.

One example is provided by the case of Ahmed Sékou Touré in Guinea (President 1958 to 1984). Touré was one of the primary Guinean nationalists involved in the independence of the country from France. In 1958 Touré's RDA section in Guinea pushed for a "no" in the French Union referendum sponsored by the French government, and Guinea was the only one of France's African colonies to vote for immediate independence rather than continued association with France. In the event the rest of Francophone Africa gained its independence only two years later in 1960, but the French were extremely vindictive against Guinea: withdrawing abruptly, taking files, destroying infrastructure, and breaking political and economic ties. Touré's early actions to reject the French and then to appropriate wealth and farmland from traditional landlords angered many powerful forces. While he was still revered in much of Africa and in the Pan-African movement, many Guineans, and activists of the Left and Right in Europe, became critical of Touré's failure to institute meaningful democracy or free media. Over time, Touré's increasing paranoia led him to arrest large numbers of suspected political opponents and imprison them in camps. This is the story of a well-meaning patriot whose regime came under such attack that he became paranoid and eventually a harsh dictator.

The revolutionary leader most famous for attempts on his life is Fidel Casto of Cuba who has survived over 600 assassination attempts, many the result of CIA's outlandish plots. The strength of his character and of the Cuban regime are shown in the refusal to move down the path of overwhelming paranoia and the murder of all opponents.

Not all events are outside personal experience, taking place elsewhere on a foreign stage. Just as a set of letters to my aunt included mention of the war of intervention, I have several times come into direct contact with people who knew directly of or played some part in historical events.

When I was a student at MIT in 1964, the official line was that the USA had no forces in Vietnam, yet I met people who knew of friends serving there.

At the Physical and Engineering Laboratory in 1972, I shared an office for a short time with a colleague who had been in Greece during the Second World War; the partisans he fought with against the fascists were for the most part communists. He was bitter that those who had fought most valiantly against the common enemy were crushed by allied forces after the war in a very reversal of democracy, as in 1947 the USA formulated the Truman Doctrine, and began to actively support a series of authoritarian governments in Greece, Turkey, and Iran, supposedly in order to ensure that these states did not fall under Soviet influence. With American and British aid, civil war ended with the military defeat of the communists in 1949. The Communist Party of Greece (KKE) was outlawed, and many Communists either fled the country or faced persecution. The Central Intelligence Agency (CIA) and the Greek military worked closely together, especially after Greece joined the North Atlantic Treaty Organization (NATO) in 1952. After many years of conservative rule, a liberal government with a policy of reform was elected and dismissed by the King in 1965. This was followed by the "Generals' Coup" and the rule of Greece by a military junta in 1967–1974. The communist party had similarly been popular in France and Italy but in 1946–1947, French and Italian communist ministers were forced out of government under Truman's pressure while the USA funded conservative parties. Meanwhile the fascist Franco regime in Spain continued to rule until his death in 1975 as his anti-communism made possible a rapprochement with the Western powers.

That European experience was repeated elsewhere, and I joined many others in demonstrations against the USA Vietnamese war, coming to understand the history of that region. The major force

fighting Japanese invaders in Vietnam was again the communist party, led by patriot and nationalist Ho Chi Minh. When the war ended the British came in, and handed the country as a colony to France. Then when the Vietnamese fought on for independence and the French were defeated, the USA took over the role of colonial power, in order to prevent the Vietnamese from a free election that would have undoubtedly have elected Ho's coalition. The Western powers permit self-government and democracy only where the electorate has been trained or forced to vote for their side.

Later I met a New Zealand mathematician who had joined the international effort to build the atomic bomb, which was then used with devastating effect on civilian populations – by the USA.

When I visited the Stockholm International Peace Research Institute (SIPRI) in 1978, I discussed wars and armaments and read through their Year Book, which showed that the USA had initiated or taken part in for more wars than any other nation since the end of the Second World War, and was consistently the major producer and exporter of arms. That has continued since. The 2009 U.S. military budget accounts for approximately 40% of global arms spending. The 2012 budget was 6-7 times larger than the \$106 billions of the military budget of China, and more than the next twenty largest military spenders combined. The United States and its close allies are responsible for two-thirds to three-quarters of the world's military spending (of which, in turn, the U.S. is responsible for the majority).

In Paris (1980-1984) I became friends with journalist Wilfred Burchett who had been the first reporter in Hiroshima after the atom bomb destroyed the city. He described how he caught a local tram before walking into the city and preparing his report, which appeared on the front page of the New York Times. He went on to report the Vietnam war from the north and as a result the Australian government confiscated his passport. He described his efforts to get down into one of the myriad tunnels below the Vietnamese soil after the war was over, made difficult by his increased girth. When he was reporting Nixon's visit to China, Nixon (who hated him) introduced Burchett to Chou en Lai, who responded, "Oh, Wilfred and I are old friends".

In Paris I stayed briefly in the home of a communist who had fought against the fascist regime, and I attended an election meeting where the communist candidate described how party policy fitted with the basic tenets of her Catholic faith.

The USA has been good to me, providing a fellowship for study at MIT and an opportunity as a well-paid assistant professor for two years at the University of Rhode Island. Many Americans share my disquiet for the role that this, the most militaristic and heavily armed of all modern nations, has played throughout my lifetime. The USA has a long history of providing support for dictators (currently including Saudi Arabia) and oppressive regimes (currently including Israel). The antagonism with Iran dates back to the pivotal role of CIA in overthrow of Mosaddeq in 1953. The fight was, and is, for American companies and against nationalisation with no regard for popular opinion. So it has been in Nicaragua, Cuba, Venezuela, Argentina, Chile and in so many other countries. The evil empire has in reality been the United States of America; the axis of evil is centered there. The CIA even created the Taliban in their fight against the Soviet support for an Afghan regime, before themselves fighting against those religious fundamentalists when the USA took their turn to invade Afghanistan.

One notable feature of the power struggle has been the protection provided by possession of nuclear weapons. Those without weapons of mass destruction – Iraq, Libya – have been attacked and gone. Those who developed the bomb – like North Korea – have a greater security. American policy suggests that the most sensible policy for Iran would be to develop nuclear arms (against a heavily armed nuclear Israel) as rapidly as possible. So long as Iran is weak it is under threat of attack, and the American and Israeli belligerency is a stimulant for an arms race and the spread of nuclear arms.

Efforts towards peaceful resolution of conflict are refused by the West, as seen in the rebuttal of the African Union effort in Libya and the refusal of rebels, backed by US Secretary of Defence Hilary Clinton, to consider a truce in Syria.

That long established policy, stretching across many generations, came to a peak with the destruction of the New York World Trade Center in 2001 (the events of 9/11). Air traffic security (NORAD) was not functioning. Two planes taken over by trainee pilots (who had been able to proceed with training despite concerns among security forces) crashed into the two main buildings, which soon after came down as if by controlled explosions. Then a third building, which had been far less damaged, followed in a perfectly executed controlled explosion, as if by an expert demolition expert. [While much of the information comes from architect Richard Gage, who gave a talk in Wellington, and the Architects & Engineers for 9/11 Truth, I have reached my own conclusions, which are stated more robustly here than they have done.]

It is difficult to accept what was shown clearly there. No damaged building had ever come down like that before. It might be possible, although straining credibility, to believe that the twin towers had such a peculiar structure that their collapse just followed the damage by the impacting planes. But not the third building, which had been so little damaged. Then there were the puffs as if of explosives set to go off below the collapsing floors, and much else besides. The reality is so horrendous that I needed to watch the pictures a dozen times before I was forced to accept what was so clearly shown.

Those were controlled demolitions. The explosives must have been set in place in advance in a well-prepared procedure. That was certainly possible when the lifts had been overhauled some months previously. The conclusions that follows has been expressed by Richard Gage – if the destruction of the World Trade Center was the result of a controlled demolition, this would mean that part of what happened on September 11, 2001, would have been planned by “some sort of an inside group”.

Should I take the next step and speak the unspeakable? This is the Arthur Conan Doyle moment.

“How often have I said to you that when you have eliminated the impossible, whatever remains, however improbable, must be the truth.” [Doyle 1890, chapter 6]

We all say it in private, but can it be written? This is the nation of the Bay of Tonkin when a fabricated story of an attack by small Vietnamese gunboats was used to justify attacks by the USA, of the contra arms scandle when sales to Iran financed attacks on the government of Nicaragua. Given the track record, it is certainly possible. All the evidence points to a plan at the highest level to assist terrorists to hijack airliners and to crash them into the World Trade Centre, with the buildings then brought down by preprepared controlled explosions. Certainly all that followed fits, as the catastrophe was used to justify the most draconian measures, including unprovoked attacks on two other nations – Iraq and Afghanistan – but not on the homeland of the terrorists involved, America’s ally Saudi Arabia. Plus draconian national legislation for suppression of alternative views.

A similar suggestion is found in *Crossing the Rubicon* where Ruppert notes “the urgency with which the Bush administration convened the National Energy Policy Development Group – under Dick Cheney – immediately after taking office in January. What do we do now? That was the bottom line. I believe that this was where the basic motive for 9/11 was fully articulated.” [Ruppert 2004, page 574]

The destruction of the World Trade Center was the springboard for many attacks on peoples and human rights in the USA and across the world, with the destruction of international law as torture, kidnapping and detention became American policy (sometimes directly as at Guantanamo, sometimes by proxy). United Nations resolutions were loosely worded and immediately

reinterpreted outrageously to 'justify' attacks on nations. False claims were made that Saddam Husein supported El Quaida, when we all knew that he hated that fundamentalism, and that Iraq had stockpiles of 'weapons of mass destruction', which United Nations inspectors had denied. Afghanistan was invaded to kill Osama bin Lada. Europe has joined in with bombing of Libya in support of an insurrection under the flimsy umbrella of a no-fly zone. The tool is naked power. The considerable efforts that have been made to develop processes for peaceful conflict resolution have been swept aside, never more blatantly than in Libya where the African Union road map that had been accepted by Gaddafi was refused by the rebels and by NATO, which continued their bombing. The process was repeated in 2012 Syria where the rebel refusal to join a ceasefire and negotiations, insisting on a military solution, was backed by European powers and the USA Secretary of Defence, belligerent Hilary Clinton. Such attacks on international law and the United Nations are the outspoken policy of the Republican Party.

Not that the belligerence and dismissal of legal procedure is only with Republicans. Democrat President Obama has continued the policy of signing death warrants on people of many nations across the world, with no recourse to the procedures of justice as drones operated from Virginia hail explosives down on wedding parties or terrorist groups. There is no control over such power, such state terrorism.

There are many client states of the superpower USA, ready to follow directions. In 2012 the New Zealand Foreign Minister, Murray McCully, spoke at the United Nations General Assembly against the use of the veto, as China and Russia had done to refuse attacks on Syria. In doing this he ignored the very many times that the USA had itself used the veto to block criticism of its ally Israel, which was confining Palestinians in a virtual concentration camp on the West Bank.

There have been considerable moves towards a totalitarian state and the extension of state control within the USA. The Patriot Act, passed in the wake of the September 11 2001 terrorist attacks and aimed at strengthening domestic security and broadening the powers of law-enforcement agencies, gives the government considerable power, threatens civil liberties and undermines the very democracy it supposedly seeks to protect. Such control over the citizenry has been applied by the very people who proclaim a desire for less government in order to reduce welfare and taxes.

"Thus the Hobbesian fear factor is kept alive and well. Hobbesian fear, unlike Nazi terror, afflicts a society in which the preeminence of safety and security ('law and order') has been drummed into the popular consciousness over the course of many political campaigns and television and movie seasons. Nowhere is the manipulation of fear better illustrated than by the numerous invasions of privacy authorized under the Patriot Act and encroachments upon constitutional guarantees, particularly those pertaining to right of counsel, confidentiality of communications between lawyers and their clients, and the resort to secret tribunals." [Wolin 2010, page 108, with following quotes from pages 101 and 167]

Democracy is always fragile and liable to capture. The New Zealand experience following 1984 is clear as a small group controlled the parliamentary caucus and pushed through a far-right agenda. Problems in the USA were evident in the attack on civil liberties led by the 1953 McCarthy anticommunist witch hunt and in Richard Nixon's dirty tricks campaigning and the Watergate scandal that led to his resignation in 1974. The disenfranchisement of a critical number of voters in Florida in the 2004 election, on the grounds that chads had not broken off cleanly (leaving a 'hanging chad'), brought Bush back into the White House for a second term.

"What was striking was not so much the highly coordinated attack on the system of democratic elections by the Bush loyalists as the feebleness of the opposition."

Corporate loyalists hold to a tough culture and to a take-no-prisoners brand of politics, following the elitist philosophy of their mentors, such as Friedrich Nietzsche and Ayn Rand (Wolin describes

the somewhat similar “elitist ideals of heroism and a disdain for the ordinary” of Leo Strauss). The weak protectors of democracy and the common good, with their desire for compromise and conflict resolution are easy prey.

From Hitler to Pinochet and beyond, history shows there are certain steps that any would-be dictator will take to destroy constitutional freedoms. In the United States George Bush and his administration were taking them all as events of the previous six years (2001-2007) paralleled steps taken in the early years of the twentieth century’s worst dictatorships. Naomi Wolf listed ten common steps that can be witnessed in the transitions of open societies into closed regimes, including “Invoke a terrifying internal and external enemy”, “Develop a thug caste” (with security contractors and government agencies ready to follow any orders, including killing and torture), “Set up an internal surveillance system to protect national security”, and declare that “Dissent equals treason (since Congress passed the Military Commissions Act of 2006, the president has the power to call any US citizen an ‘enemy combatant’)”. [Wolf N 2007, referenced in April 2007 in a Guardian article “Fascist America in Ten Steps, The End of America”.]

Yet, despite all that has happened, and the available critical analyses, the mass of the American people continue to believe in the ‘American dream’ and that their country is the foremost and best democracy that has ever existed.

“There are two fundamental presuppositions – actually, articles of faith – that guide U.S. foreign policy. They are accepted by official sources in both political parties and they are almost never questioned in major U.S. news media. The first elite presupposition is the notion that the United States is a benevolent force in the world and that whatever it does, by definition, ultimately is about making the world a more just and democratic place. This is a pleasing assumption, and it puts a necessary fig leaf over what may be less altruistic aims. This presupposition makes it possible to dismiss as insignificant anomalies the recurring support for dictators and antidemocratic regimes and the repression of democratic movements that are seen as insufficiently sympathetic to U.S. interests. To cite a few examples: Guatemala and Iran in the 1950s, Brazil, Indonesia, and Greece in the 1960s, Chile and Zaire in the 1970s, El Salvador and Guatemala in the 1980s, Saudi Arabia and Pakistan today.

The second elite presupposition that is unquestioned in U.S. media coverage of U.S. foreign affairs is the notion that the United States, and the United States alone, has a 007-like right to invade any country it wishes. The United States also reserves the right to ‘deputize’ an ally to conduct an invasion if it so desires, but otherwise other nations are not permitted to engage in the invasion business. This presents a small problem for the political elite and for the news media. After all, the UN charter and a number of other treaties signed by the United States prohibit the invasion of one nation by another unless it is under armed attack. Moreover, the U.S. Constitution characterizes treaties as the highest law of the land, so that if the United States violates international law, it arguably warrants presidential impeachment. To top it off, in popular discourse, the United States proudly promotes itself as favoring the rule of law, and a main argument against all of its adversaries is invariably that they are liars who ignore treaties they have signed. That is, in fact, sometimes used as a rationale for a U.S. invasion.

The problem the United States faces is that almost all of its invasions violate international law, and sometimes, as in the case of Iraq, in a blatant manner. So how do the political elite and the news media reconcile this contradiction? Simple: They ignore it.” [Nicols and McChesney 2005, pages 45 to 47]

The quiescent fellow travellers include not only the ‘silent majority’ in the USA, and the Republican Party with its criticisms of President Obama for not attacking Iran. Republicans display an unreal patriotism and falsely claim that “the USA is the greatest force for peace and liberty the

world has ever known". Across Europe, former champions of liberty have joined in warlike posturing while across the world client nations, such as New Zealand, are mute as they work to snuggle up to the superpower and join in military exercises. [The strange world we live in was shown the day I wrote that, as the European Union was awarded the Nobel Peace Prize. But so had Obama.] All are culpable, preferring ignorance to awareness.

"The darkest places in hell are reserved for those who maintain their neutrality in times of moral crisis." [Dante Alighieri]

The failure to be aware of and react to either the many fires blazing across neighbouring walls, the collective, global collapse or the capture of Western societies is a consequence of "Sandburg's perennial theme – the terrible significance of the power to control, the timeless interplay of controller and victim, whether in economics or labor or war." [Niven 1991, page 400] Control is through a "postmodern potpourri" of interlocking positions of power.

"Politicians resign in order to accept lucrative corporate positions; corporate executives take leave (typically with 'delayed compensation') to run government departments and set policies, and high-ranking military officers are hired by corporations, become TV commentators, join faculties, and run for presidential nomination. One consequence is that the political has been managerialized. ... [At the Republican Party Convention in 2004] For the first time in American history that same convention presented the spectacle of about a dozen retired generals and admirals posing on the stage of a party's convention and serving as a clique for the party's candidate ..." [Wolin 2010, pages 135 and 199]

In 2012 a number of "Generals for hire", top-ranking British military officers, were secretly filmed "boasting about lobbying to win multimillion-pound defence deals for arms firms in breach of official rules." One, "Lieutenant-General Richard Applegate, a former Defence Ministry procurement chief, described a secret and successful lobbying campaign in parliament for a £500 million (NZ£983m) military programme on behalf of an Israeli arms firm." [Dominion Post, October 15 2012]

Close links between the American financial and security establishments are identified by Ruppert in a section "The CIA is Wall Street", "by looking at key players in the CIA's history and their relationships to America's financial engine." [Ruppert 2004, page 53]

There has always been a struggle for power among competing groups, sometimes with one in such ascendancy that others are crushed, downtrodden. While the elite controllers of the Cold War were able to carry out the wishes of the military-industrial elite in the decades after the Second World War, there was a degree of participation of all groups in the governance of many Western nations, a reasonable democratic balance. That has now gone. In Greece and Spain, masses of the unemployed suffer while the interests of finance are paramount. Many countries have been attacked or are threatened. A massive controlled media system protects and champions the oligarchy and the consumer society. Concerns for the environment and the destruction of so many other species, with the extraordinary overpopulation of the globe, for limits to capitalist production and for limits to resources have been sidelined, treated only to the occasional empty talk-fest while demonstrations take the form of dancing or camping with no concrete policy. The revolution of a paradigm shift from expansion across unbounded wastes to the recognition that the earth is full, overfull, is nowhere to be found while the oligarchy of corporate fascism – the industrial-military-financial elite – remains firmly in control. But for how long?

The mantra of the 1980s was that 'There Is No Alternative', the creed of TINA. The triumph of the corporates was called liberal capitalism and declared immortal but it too will collapse and come to be replaced, but not before it will have taken a whole civilisation down with it. The economic crisis that followed the 2008 financial meltdown has shown that the system is highly unstable.

“There are several self-defense mechanisms for any system which is cracking apart. One is to argue one’s own immortality. This is a nineteenth century concept. The idea of evolution and progress was then fashionable during a time of considerable advances in geology and natural sciences. German philosopher Georg Wilhelm Hegel applied the concept of evolution to society and felt that the modern industrial world represented a near-perfect final state. The theme has been revived recently.

‘... what I suggested had come to an end was not the occurrence of events, even large and grave events, but History: that is history understood as a single, coherent, evolutionary process, when taking into account the experience of all peoples in all times. This understanding of history was most closely associated with the great German philosopher G W F Hegel.’ [Fukuyama 1992, Introduction page xii]

That sort of claim of pre-eminence and near perfection has been made many times. The desire to stop history has often been used as a propaganda device to argue for a preferred political system. Each claimant aims to undermine the credibility of rivals. The originator of the concept of an end of history, Hegel himself, argued that the German totalitarianism of his day would be triumphant.

‘... the progression towards the absolute in history provided an opportunity for some pretty crude nationalist propaganda. It would appear that history reached had reached its ultimate stage in the Prussian state of Hegel’s day. Such is the conclusion that Hegel reaches in the ‘Philosophy of History’. It now appear that the great dialectician was here somewhat hasty in his deduction.’ [Russell 1959, page 247]

Others, too have been shown to have been somewhat hasty.

For Marx, communism would provide the final and finest form of social development. As Engels commented, ‘Communism is the riddle of history solved, and it knows itself to be this solution.’ While communism, in its several forms, has been a powerful force in the twentieth century, the collapse of the empire of the USSR has left little hope for the inevitable victory of socialism.

Towards the end of Marx’s life, Victorian Britain was coming to the height of its power. Surely, they thought, their system would endure.

‘To a middle-class English child of the present writer’s generation it seemed in 1887, the year in which the British were celebrating Queen Victoria’s diamond jubilee, as if the world into which he had been born had transcended history, since history signified a past age of injustice, violence, and suffering which the ‘civilized’ nations had left behind, never to recur, so it was naively assumed. Western civilization was ‘Civilization’. It was unique. Its rise and world-wide dominance were the inevitable and well-deserved rewards of its merits. ‘Civilization’ had come to stay. That was why history was now obsolete.

The achievements that were the grounds for this optimism were in truth impressive; yet each of these achievements was imperfect and contained within itself the seeds of future trouble. In the 1970s the flaws seem patent; but between 1871 and 1914 they were not so easy to discern.’ [Toynbee 1976, pages 577 and 578]

Later came Hitler and his ‘Thousand year Reich’.

‘The German form of life is definitely determined for the next thousand years. The Age of Nerves of the nineteenth century has found its close with us. There will be no other revolution in Germany for the next one thousand years!’ [Hitler, quoted in Shirer 1960, page 230]

Fortunately by 1945 Hitler’s dream lay in ashes. The terrible destruction of the Second World War provided a springboard for the economic growth period which followed. Across much of the developed world there was a truce between socialism and capitalism. The socialist used the ballot

box and was content with the welfare state and a share of the general wealth. The capitalist benefited from the increase in state activity, and accepted a degree of national ownership of key industries (some of which, like the railways, had failed under private control).

The mixed economy was taken for granted by many of us. But it has been dismantled and replaced by the New Right model. Fukuyama now believes that there is a global consensus in favour of 'liberal democracy' which, according to him, is free from defects.

'I argued that a remarkable consensus concerning the legitimacy of liberal democracy as a system of government had emerged throughout the world over the past few years, as it conquered rival ideologies like hereditary monarchy, fascism, and most recently communism. More than that, however, I argued that liberal democracy may constitute the 'end point of mankind's ideological evolution' and the 'final form of human government', and as such constituted the 'end of history'. That is, while earlier forms of government were characterized by grave defects and irrationalities that led to their eventual collapse, liberal democracy was arguably free from such fundamental internal contradictions.' [Fukuyama 1992, Introduction, page xi]

His 'liberal democracy' is in reality nothing other than free market capitalism. As already noted, the New Right has scant regard for real democracy. Similarly the 'liberal' label must be treated with care, for the word has several, contradictory, meanings." [Robinson 1996]

Millennia of progress and tremendous human achievement produced the most murderous century in human history, the twentieth century. The next one, the twenty-first will be immeasurably worse. Humanity, having produced so many wonders and so much genius, will collectively behave as a virus to overpopulate and destroy this one planet home until a massive die-off is inevitable. And that time is fast approaching.

* * * * *

Chapter: The complete forecast

This is a unified forecast (akin to a mega-scenario), with information gathered from a multiplicity of sources, unconstrained by any disciplinary boundaries as any major factor identified has been followed and integrated into the total picture of the most probable future. The forecast has been built with information from many scenario projections and from an extensive selection of scientific studies, including historical accounts, philosophical and economic thought. The aim has been to rely on facts and to connect the forecast with the major global trends that have continued throughout the forty years since the analysis began.

The genesis of this forecast covers a number of decades in a wide-ranging exploration. The methodology and best formulation of a global projection has come from a career in science, studies of the philosophy of science, workshops and studies of the organisation of research teams, together with experiences with several futures projects. The basic overview derives from many scientific publications, from histories of the evolution of mankind and of the collapse of past civilisations. A time scale has been provided by a series of global computer models. The more complex models suggested that shortages of water and food would lead to population decline in parts of Asia, and studies of water and food resources further clarified an eventual inability to feed a considerably increased population. Overpopulation is evident and further population forecasts were available as computing capabilities had improved. Limits to resources became focussed on energy during the oil crises of the 1970s when a number of knowledgeable predictions of an end to plentiful oil were

available. Concern with pollution was tightened with the growing evidence of climate change, informed by awareness of past massive climate change events, both in historical times and across geological time. Information on long-term economics came from outside standard texts, with a series of papers supported by considerable evidence during the recent long stagnation. Throughout the process considerable information has come from developing trends, as reported in the media.

Awareness of culture stagnation grew from research and writings on the experience of Stone Age Maori when Europeans appeared from across the ocean. The denial of any need for change, and for a paradigm shift, was evident in many personal experiences and a search for the reason why there was no action in face of such an overwhelming challenge identified class control and self-interest as blocking agents in a growth-oriented consumer society. The recognition that there would be no change to avert disaster then became a guiding feature of the forecast. Direct experience in many community organisations and NGOs showed that any hopes for a populist movement were displaced. Disquiet with current political systems found considerable support in analyses from many countries, including the rewards to servants of the oligarchy in New Zealand and the growing disquiet in the USA.

Futures research developed within a given framework, including the presentation of sets of scenarios, based on the claim that a civilisation can make choices. The aim then was to explore the consequences of various possible directions. It became clear however that a collection of differing scenarios failed to provide a clear picture, and that decision-makers would just choose whichever version suited their current policies, without taking warnings into account. Consequently, I moved from scenarios to one clear forecast.

Further, there were great forces effectively controlling societies, which would block those alternatives that did not suit their interests. The concept of an intelligent civilisation, of a thinking humanity debating, understanding and choosing a best-possible future was a chimera, a nonsense. As Alexander King pointed out, “governments, political parties and the public do not sufficiently appreciate their impotence on solving domestic problems which are in fact dominated by world trends outside the control of individual nations.” [Alexander King in Friedrichs and Schaff 1982] The forecaster needs to understand that. The aim has been to follow a scientific approach, and thus an effort has been made to face many unpalatable facts. The guiding reality is that, taken as a whole, homo sapiens is acting exactly like any unthinking organism, be it plague or rabid rabbits in an enclosed field.

There has long been a need for a think tank for the people, not for military (Rand), business or economic interests (OECD, Mont Pelerin, Adam Smith). A need for a change of paradigm was evident, yet most research has been carried out within the old, failing paradigm of growth and expansion. Given the capture of futures thinking and planning by forces of the status quo, and the resultant lack of place for independent thinking ‘outside the square’, this became a solo effort, a one-person think tank. The search for the most probable path meant that I have had to accept that my desired paradigm, philosophy and societal organisation would not arise. The forecast is very much a most probable future, not a preferred future. Increasingly, I have been a spectator of a foolish world. I want to be an active participant in this society, but the choice has been between belonging and honesty.

It is not easy to speak out when all acceptance, honours and prestige are heaped on the servants of the powerful and the major effort is to conform and be a member of the group. A robust analysis has only been possible in the years since I quit membership in constraining organisations (New Zealand Futures Trust, Royal Forest and Bird and various other community groups) and gained a degree of self-confidence from the support of a small group in the Island Bay World Service. As we have worked together, and failed together, those discussions have allowed us to escape from the arrogance, the bullying tactics and the rejection of deviation common in most social groups. Thus I

have turned away from displacement activities back to the reality and scientific method of Limits to growth, to the real world in a forecast that can be open to test.

Many methodologies have become accepted and taught within the various branches of futures research. Curiously there is little concern as to whether they are effective. One example has been the use of Delphi by Tourism New Zealand. A group of 'experts' are asked for their expectations, which are then circulated to all and a new round produces a second list. This is followed by further discussions. This is thought to be an effective methodology, yet the result has been forecasts of increasing visitor numbers (which is what tourist operators desire), which have been completely wrong for the past six years.

The challenge is to bring together a considerable diversity of information and judge which explanations best fit the facts. The method of approach is simple. I returned to the process of flux that I suggested in 1972, constantly building a forecast in a movement to and fro between big picture integration and specific studies (to paint in details and deal with questions arising). There was no possibility of staying within disciplinary boundaries, or even remaining in the sphere of scholarship that many people considered the domain of science. The problem was the future of global civilisation; the challenge has been to follow the trail wherever it led. That meant dealing with politics and religious philosophies, with differing and challenging paradigms. That meant going out of the comfort zone. For me this was liberation, taking up the freedom to carry out a study of what is undoubtedly the most important scientific and existential question of the age – whether the whole of human society would collapse before the middle of the twenty-first century.

Here is what I expect.

Population will continue to increase, keeping with the 1972 standard projections until the numbers will be too great to feed, with collapse forecast for around 2030. There will be no attempt to stop the population explosion, rather a continuation of pro-natalist religions.

Many species will disappear in a global die-off. Remaining natural reserves will continue to dwindle as the whole planet is transformed further into human habitat.

Food will become inadequate to feed the immense numbers, with water availability the major limit, along with shortage of land, climate changes and increasing use of land for living spaces (cities) and for other production (such as biofuels).

The production of greenhouse gases will continue to force climate change, with steady temperature rises moving above those previously forecast, together with a failure to significantly reduce outputs. The crisis may become far worse than suggested by current forecasts, with the movement of Greenland ice threatening enormous rises in sea level, as well as the possible release of methane by the melting of arctic tundra.

Many resources will be in short supply; prices will increase and the struggle for their ownership will intensify. Oil production had been forecast to peak around 2005-2010, which it did. After an uncertain plateau period of constant production and unstable prices, the output will commence the inevitable reduction. Greater efforts will be made to find new sources and increase production than to reduce consumption. The consumer society will continue until the crisis and collapse around 2030.

Unstable global capitalism, with considerable central control extending the stagnation phase of a Kondratieff cycle, was forecast to continue into the twenty-first century and to suffer a crash similar to that of 1929-1933 during the first decade of that century; this came in 2008. As expected, the crash was affected by changes in the supply of petrodollars during the oil peak, and resulted for some years in a reduced (steady rather than growing) demand for oil

Ancient religions, superstitions based on long gone societies, will continue to flourish as escapism trumps reality. Religious fundamentalism will continue to grow, and continuation of old rivalries will divert attention away from the new fundamental problems. That process will worsen during and following the crash around 2030.

A previous concern for possible fascism has been replaced in the forecast by recognition of the existence of corporate fascism and the triumph of the military-industrial-financial complex. The powerful will hold on to their privileges, and inequality will continue to expand, to produce a world of great class differences. Popular revolt is possible but central control is more likely to strengthen, with a strong dictator 'coming to the rescue' of a bewildered population.

Two classes of refugees will move from less favoured regions. These will be the poor (the boat people) and the wealthy (escaping environmental and social degradation). The poor will be unwanted, prohibited and deported, the wealthy welcomed to lifeboat nations where they will strengthen the existing oligarchy.

The period around 2030 and thereafter will be a time of great horror and war. The large number of highly populated cities may collapse along with the supporting society.

War over resources will heighten and a world war of global extent is possible, particularly given the domination of one belligerent superpower, the USA. In the 2012 presidential campaign Republican candidate Mitt Romney described Russia as the USA's "number-one geopolitical foe", seeking an enemy to rally the nation against. The less powerful, many in the world of Islam, answer with desperate religious war.

The steady development of a multi-polar world with a number of centers of economic power, and the modernisation of China and India, has been clear for some time. [OECD Interfutures 1979] China will overtake the Eurozone in 2012 and the USA within the following four years to become the world's largest economy, while India is overtaking Japan. [OECD 2012] All nations share in the mania for growth, with increasing populations, pollution, great cities, and obscene wealth hand-in-hand with impoverishment, even in the former communist nations of Russia and China (each of them ruled by their own oligarchic elite).

This is a forecast of general trends and not a prediction of particular happenings. These are not separate developments; the various trends will interact. As global events unfold, there will not be one clear cause leading to one outcome but a combination, jumbled and spread over time, many of which have been under way for decades already. Some unusual event such as a major eruption or a poor harvest due to particularly bad weather may act as an immediate catalyst, driving other unstable and interlinked elements in a world that is hovering on the brink. Population will never be recognised as a driving force yet it is the basic cause of the entire pattern.

The forecast includes an expectation of foreshocks as the variety of trends builds towards the 'perfect storm' in 2030 suggested by Britain's chief scientific adviser, John Beddington. [Guardian, Wednesday 18 March 2009] Such foreshocks provide ongoing tests of the forecast, and are a major part of the learning process. Those that have occurred, together with ongoing events, have informed the current forecast, and will continue to do so as the storm clouds continue to build.

Many of these events are now inevitable. Humanity continues to extend its grip as the entire world is colonised and made use of by this careless and selfish species. A paradigm shift has been called for, but is refused. Here is the major assumption of the forecast, which had become evident by 1980: there will be no change in direction away from growth, but rather continuation towards crisis, a rush to destruction. The overwhelming reaction is, and will be, denial with no serious consideration of the new global reality as a finite planet is overpopulated by a foolhardy dominant species. The direction is set and no deviation can be expected.

The full crisis was not inevitable once, when there was time to change direction, but the determination to continue in that suicidal path has been maintained with the false claim that ‘There Is No Alternative’ (TINA). It has always been possible to find a way out of the trap of overgrowth, overpopulation and overproduction, and for that reason this description of the most probable (almost certain) forecast has been supplemented by an introduction to such an alternative – the no-growth, leisure society, lazy socialism of the chapters “A better way” and “Alternative economics”.

* * * * *

Chapter: The forecast tested

A test of a forecast, applying the scientific method, means moving from the past date of the forecast to the present and considering whether events have followed the suggested path. This is not the full crash, which is yet to come, although less than twenty years off now, but a test of the both the path being followed and those events that were predicted for a date now in the past. This is readily possible with any part of the forecast set down some years ago, although not when dealing with elements that have been recently updated to add guidance from ongoing trends.

The whole forecast brings together information from many sources to suggest a ‘perfect storm’, a major global crisis in the years around 2030. It is, in effect, a combination of many forecasts, of interlocked trends. The concept of ‘foreshocks’ is here illustrated by the number of major events that show the working out of the forecast pattern.

A major stimulus to this study, and a guide that has withstood the test of time since publication in 1972, is *The Limits to growth*. This report considered whether humanity might so overrun the limits of the earth as to force a total collapse, in which case the conditions for universal wellbeing have long been passed.

“As we examine the results of their analysis, we should pause to consider the question that has been posed. This is not whether our civilisation is or can be in balance with nature, with respect for other life. It is not whether the current population can provide a high quality of life for all. Those limits were passed long ago. It is rather how far can human numbers increase before the limits of a finite planet are passed; how many can we fit in. The question is not how best to act wisely, but how far we can go as a senseless plague.” [Robinson 2011a]

The forecasts followed a number of major variables for the whole world, as one unit, with a standard run guided by the best choice of parameters the authors could make, and several other runs exploring the consequences of different behaviours and different estimates of limits.

A review in 2000 of forecasts based on global computer models found that a number of other, more complex, models had repeated the general message of *The Limits to Growth* that crises may occur around the middle of the twenty-first century. [Robinson 2000] The most prominent problem suggested in a number of scenarios with different models was a food shortage in Asia within the 2020-2060 period. All models assumed considerable increases in both land productivity and in the area of land available for agriculture, but populations increase past the level of sustainability.

However, an emphasis on technological advance was found to dominate much of the futures literature, with the assumption of a technological fix for each problem. That picture of the future tended to ignore the environment and the place of other species, and to trace the creation of a largely artificial civilization. Many technological advances have continued, and can be expected to do so in the coming decades.

“There is here the possibility of the coexistence of two very different pictures of the future world. Some of the models suggest the possibility of food shortages, which would exacerbate the considerable inequalities observed today. That negative scenario may be exacerbated by water shortages and climate change. A much more prevalent picture in futures research is of increasing human capabilities, new technologies and wealth. Both sets of forecasts may prove viable, as existing trends take different regions along very different paths.”

The two sets of forecasts suggest a world of great inequality, with poverty and collapse coexisting next to great wealth and technical gadgetry. Both form part of an integrated forecast. This is believable; such differences have been observed in the past and are evident today.

Graham Turner at the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) has made a comprehensive comparison of recently collated historical data with *The Limits to Growth* forecasts, first for the years 1970-2000 and then with an update to 2010. [Turner 2008a, 2008b and 2012, Strauss 2012. Turner provided copies of figures 2 to 4 for use here.] His initial conclusion was that the world has been following the pattern described by the standard run.

“30 years of historical data compare favourably with key features of a business-as-usual scenario called the ‘standard run’ scenario, which results in collapse of the global system midway through the 21st century.”

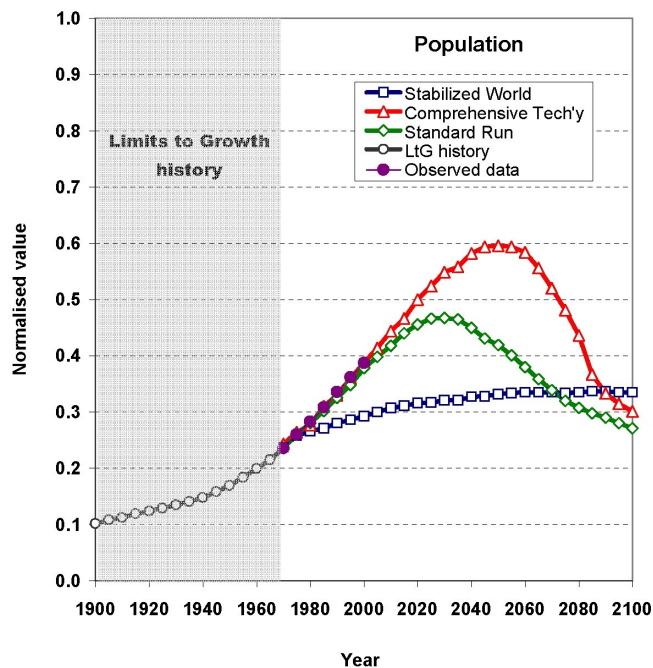
The later update (to 40 years into the forecast) showed the trends continuing for a further decade. Turner there emphasises the evolution of the crisis, as shown by the model runs, over several decades.

“Global data continues to confirm *The Limits to Growth* standard run scenario, which forecasts an imminent collapse in living standards and population due to resource constraints. Further, the mechanism underlying the simulated breakdown is consistent with increasing energy and capital costs of peak oil. The diversion of energy and capital away from industrial, agricultural, and service sectors is a greater problem than climate change in the modelled scenario since it leads to global collapse by about 2015. ...

Although the modelled fall in population occurs after about 2030 – with death rates reversing contemporary trends and rising from 2020 onward – the general onset of collapse first appears at about 2015 when per capita industrial output begins a sharp decline. Given this imminent timing, a further issue this paper raises is whether the current economic difficulties of the global financial crisis are potentially related to mechanisms of breakdown in *the Limits to Growth* standard run scenario. In particular, contemporary peak oil issues and analysis of net energy, or energy return on (energy) invested, support *the Limits to Growth* modelling of resource constraints underlying the collapse, despite obvious financial problems associated with debt.”

The observed population has followed the ‘standard’ and ‘comprehensive technology’ runs, having diverged from the ‘stabilized world’ run from an early date. The picture is clearly of continuation of previous trends and no global effort to control population. By 2030 the population in the ‘standard’ run has peaked and is beginning to fall, reducing by around one-third in the following 50 years. That population decline is the consequence of earlier decreases in industrial output and food.

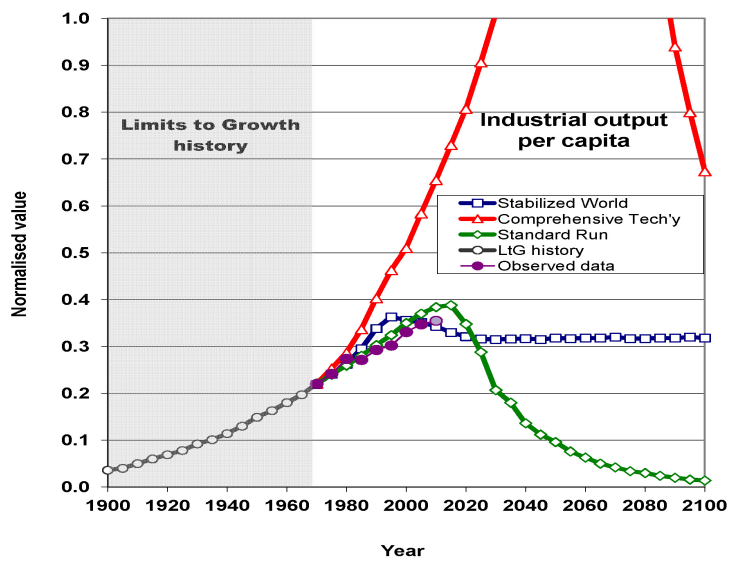
Figure 2 Population, forecast with observed data to 2100



The crude birth rate had dropped a little below the 'standard' run before converging on it in 2010. The crude death rate also ran a little below the 'standard' run before leveling off for the last few years to 2010, when the difference was small.

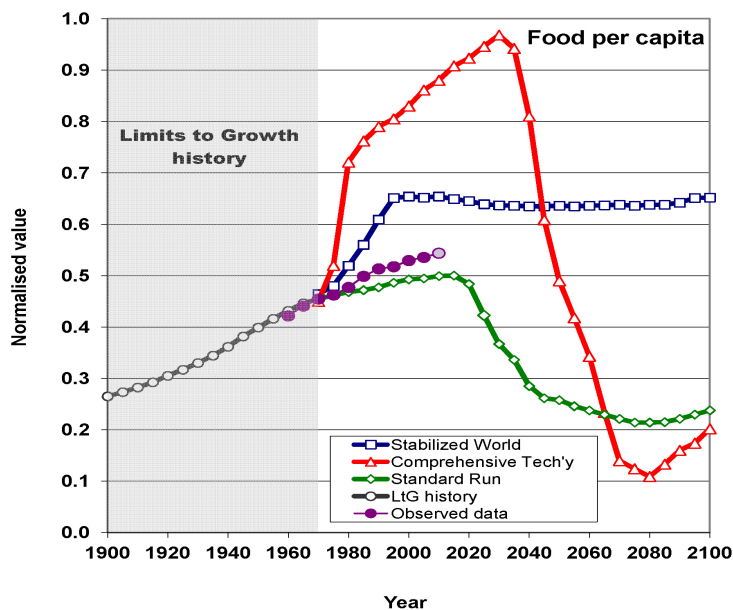
Industrial output per capita has followed the 'standard' run trend line, being well below the 'comprehensive technology' forecast. The time of a peak in the 'standard' run, around 2015, is not far off (in 2012). In that run, industrial output collapses to one-quarter its 2015 value within 25 years.

Figure 3 Industrial output per capita, forecast with observed data to 2010



A similar pattern is evident for food per capita, which is just above the ‘standard’ run to 2010. That run suggests a peak around 2015 and a rapid decline after 2020

Figure 4 Food per capita, forecast with observed data to 2010



It is less easy to estimate measures of global pollution and non-renewable resources. Turner’s estimates of pollution follow the ‘standard’ run to 2010. He gives a range of non-renewable resources, with the high estimate close to the ‘comprehensive technology’ run and the low estimate close to the ‘standard’ run.

Much evidence from other sources, including from some scenarios derived with other (more complex but often confusing) global models, suggests that food production, limited by shortages of

water, will be the critical limiting factor and provide the breaking point for population, with the first population declines occurring in Asian regions.

A number of publications from the Worldwatch Institute through the 1990s, in the Environmental Alert Series, described the developing food crisis. Lester Brown raised the question of Who will feed China?

“The loss of food security promises to become the defining focus of the global environmental threat. This is most evident with the oceanic food system, where human demand is pressing against the limits of natural fisheries. ... spreading water scarcity, the limits of available crop varieties to effectively use more fertilizer, and the lack of fertile new land to cultivate are combining to slow the growth in food production on land. After expanding much faster than population from 1950 to 1984, grain production has since fallen behind population growth, dropping nearly 1 percent per year. There are still opportunities to expand grain production, but none promise the quantum jumps in output that came with earlier advances, such as the hybridization of corn or the growth in irrigation, from mid-century forward.

Rising prices, already dramatically evident with seafood, are likely to spread to rice, wheat, and other food staples, making survival an issue for the world's poor. At the national level, food scarcity will affect economic stability and, for some governments, perhaps political survival.

For the first time, an environmental event – the collision of expanding human demand with some of the earth's natural limits – will have an economic impact that affects the entire world. Rising food prices will touch all of us one way or another.” [Brown 1995]

Sandra Postel explored the possibility of water shortages.

“Water is renewable, but it is also finite. As population and consumption grow in any given location, water demand approaches the natural limits of the water supply. If it hits those limits, signs of trouble emerge – such as falling water tables, dried-up rivers, and shrinking lakes and wetlands. ... these physical symptoms of scarcity are now evident in many parts of the world. But is the world as a whole likely to bump into water limits anytime soon? ...

The results surprised us. We found that only 31 percent of the total amount of water that annually flows toward the sea is actually accessible to humans. We also found that the human economy is already using 35 percent of this accessible runoff to supply irrigation, industries, and households and at least an additional 19 percent of it to meet instream needs. So humanity is now appropriating more than half of accessible runoff.” [Postel 1997]

Irrigation has transformed many lands, but brought new vulnerabilities, including dependence on man-made infrastructure and soil degradation due to the build-up of salts.

“We now derive about 40 percent of our food from irrigated land. ... Groundwater is being pumped faster than nature is recharging it in many of the world's most important food-producing regions – including many parts of India, Pakistan, the north China plain, and the western United States. In many river basins, particularly in heavily populated Asia, there is simply little ‘undeveloped’ water to tap. Worldwide, the amount of irrigated land per person has been declining for nearly two decades because of the rising economic, social, and environmental costs of large new water projects. One out of every five hectares of irrigated land is losing productivity because of spreading soil salinization. And as water becomes scarce, competition for it is increasing – between neighboring states and countries, between farms and cities, and between people and their environment.

Water scarcity is now the single biggest threat to global food production. Just two decades ago, serious water problems were confined to manageable pockets of the world. Today, however, they exist on every continent and are spreading rapidly. More than a billion people now live in countries

or regions where there is insufficient water to meet modest food and material needs per person. In many of these areas, populations are expected to expand greatly over the next few decades, raising the prospect of greatly increased food-import needs.” [Postel 1999]

One development since this was written is the shift of valuable food-producing lands into biofuels. That was meant to provide some relief from the climate change resulting from greenhouse gas emissions. The major consequence is however to reduce food supplies, and to increase prices, within a system already damaged by climate change.

“I believe we might have made a mistake: a mistake whose consequences, if I am right, would be hard to overstate. I think the forecasts for world food production could be entirely wrong.

Food prices are rising again, partly because of the damage done to crops in the northern hemisphere by ferocious weather. In the US, Russia and Ukraine, grain crops were clobbered by remarkable droughts. In parts of northern Europe, such as the UK, they were pummelled by endless rain.

Even so, this is not, as a report in the Guardian claimed last week, ‘one of the worst global harvests in years’. It’s one of the best. World grain production last year was the highest on record; this year’s crop is just 2.6% smaller. The problem is that, thanks to the combination of a rising population and the immoral diversion of so much grain into animal feed and biofuels, a new record must be set every year. Though 2012’s is the third biggest global harvest in history (after 2011 and 2008), this is also a year of food deficit, in which we will consume some 28 million tonnes more grain than farmers produced. If 2013’s harvest does not establish a new world record, the poor are in serious trouble. ... A famous paper published in 2005 concluded that if we follow the most extreme trajectory for greenhouse gas production (the one we happen to be on at the moment), global warming would raise harvests in the rich nations by 3% by the 2080s, and reduce them in the poor nations by 7%. This gives an overall reduction in the world’s food supply (by comparison to what would have happened without manmade climate change) of 5%.

Papers published since then support this conclusion: they foresee hard times for farmers in Africa and South Asia, but a bonanza for farmers in the colder parts of the world, whose yields will rise just as developing countries become less able to feed themselves. Climate change is likely to be devastating for many of the world’s poor. ...

This is where we stand with just 0.8 degrees of global warming and a 30% loss of summer sea ice. Picture a world with 2, 4 or 6 degrees of warming and a pole without ice, and you get some idea of what could be coming. ... Perhaps there is no normal any more. Perhaps the smooth average warming trends the climate models predict – simultaneously terrifying and oddly reassuring – mask wild extremes for which no farmer can plan and to which no farmer can respond. Where does that leave a world which must either keep raising production or starve?” [George Monbiot, “Could scientists have got the impacts of climate change on food supply wildly wrong?” Guardian 16th October 2012]

Food supplies from the sea are similarly limited, and damaged. The most dramatic example is the collapse of the cod fishing off Newfoundland that was carried out at a subsistence level for centuries, from the time of the European discovery of the North American continent. After his voyage in 1497, John Cabot’s crew reported that “the sea there is full of fish that can be taken not only with nets but with fishing-baskets”, and around 1600 English fishing captains reported cod shoals “so thick by the shore that we hardly have been able to row a boat through them.” In 1951 factory fishing began. The cod catch peaked in 1968 at 810,000 tons, approximately three times more than the maximum yearly catch achieved before the super-trawlers. The industry collapsed entirely in the early 1990s and in 1992 the devastating collapse of the cod stocks off the east coast of Newfoundland forced the Canadian government to take drastic measures and close the fishery. Over 40,000 people lost their jobs and the marine ecosystem is still in a state of collapse.

In 1951, some 95 percent of the world's marine fisheries were under-exploited and fish harvests were rising almost everywhere. By 1971, about 30 percent of fisheries were fully developed or already in decline, and the balance were being developed. None could be classified as undeveloped. By 1994, fish harvests were falling in 35 percent of fisheries and were at maximum exploitation levels in another 25 percent.

Some of the catch, of smaller fish, is used for fertiliser production and aquaculture, where demand is increasing. As it requires 2.5 kg of caught fish to produce 1 kg of farmed fish, forecasts of aquaculture production rising to near the levels of the wild catch are not realistic.

The increase of population, which has followed the previous median projections for the last forty years, has resulted in a considerable expansion of human habitation. By 2011 there were 65 cities with 3 million and more, Shanghai being at the top with 18 million. [United Nations World Urbanization Prospects the 2011 revision] Whereas in 1970 39 million people lived in so-called 'megacities' with 10 million or more inhabitants, by 2011 359 million people (9.9 per cent of the urban population of the world) lived in these megacities, and the number is expected to increase to 630 million in 2025. Some will be even larger, with 19 'supercities' having populations of 20 million people or more during the 21st century. The resources and infrastructure required to build and organise dwellings and workplaces, and to bring water, food and energy into these cities, as well as to deal with human waste and other pollutants, will be challenging. There will be considerable potential for disaster amongst these complex systems in a stressed world.

These conurbations are heavily dependent on transport systems driven by fossil fuels, and particularly oil. Here forecasts of peak production, and future shortages, have proved accurate. As outlined in a previous chapter, "Oil and the dominance of the motor lobby", both Hubbert's 1956 forecast of a 1970 peak in USA oil production and later forecasts of a global peak around 2005 correctly predicted those events. The changes in production and the price fluctuation had a considerable impact on economies and geopolitical events throughout the 1970s and again in the first decade of the twenty-first century. Alternative forecasts (as by the IEA) of continuing increases in production and low prices were wildly wrong. These – the peak, the price rises and instability and the resultant geopolitical and economic instability – have been examples of the foreshocks expected as stresses build and limits are approached.

Two alternative pictures of the form of the oil peak have also been suggested and tested. The expectation of a short peak and rapid downturn (found in a number of publications) has not been confirmed. Events have rather followed a second forecast behaviour of a long plateau, as efforts to increase both production and demand prevented any decrease, and there has been little change in production since 2005. The time of the eventual reduction in supplies is uncertain.

Burning of oil has been a major contributor to pollution, at both the local and the global levels. Estimates for New Zealand suggest that each year there may be a possible 400 premature deaths due to exposure to particulate emissions. This is in addition to around 400 road fatalities, and serious injury to 4,280 from accidents, with a financial cost (real expenditure) of loss of life, disabilities and property damage of around \$3.2 billion. [Ministry of Transport, The Social Cost of Road Crashes and Injuries June 2009 update, referenced in Robinson 2011a] The global impact is far more serious, as the use of fossil fuels is resulting in considerable changes to the climate, with global warming and more extreme climatic events.

Concern that human activities might be having an impact on the global ecosystem were few when Charles Keeling commenced making high-precision measurement of changes in atmospheric carbon dioxide concentrations in March 1958 at the Mauna Loa Observatory in Hawaii. In the early 1960s, the National Science Foundation stopped supporting his research, calling the outcome "routine". Yet, despite that lack of interest, the Foundation used Keeling's research in its warning in 1963 of a

greenhouse effect. That warning was repeated in a 1965 report from President Johnson's Science Advisory Committee. The Mauna Loa measures have proved an invaluable resource with the continuous measurements showing the seasonal variations and the average annual concentration increasing considerably from 315 ppm in 1958 to 391 ppm in 2011. Note the time scale – a warning in 1963 and no substantial action yet in 2013, 50 years later.

The concept of global warming was for some time controversial among scientists. In Europe there was warming during the years prior to 1950, a period of cooling between 1950 and 1975, and then steady warming for some time. [IPCC 2007, referenced in Robinson 2011a] It now appears probable that there are natural fluctuations, around 50-year cycles, and that a cooling phase negated the warming trend for a time. The long-term increase in greenhouse gases, in global temperatures, and in the consequential sea-level rise and ice melting (and, most significantly, the increased movement of glaciers off Greenland and Antarctica) are well understood, recognised and observed.

“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level.”

This is from the 2007 report. Scientists involved with the International Panel on Climate Change (IPCC) have told us that later data has pointed to more extreme changes, and the next report will raise deeper concerns. Indeed by 2012 earlier warnings of a possible average temperature rise of 2° C this century were replaced by estimates of a probable rise by 6° C, with possible sea level rises of 75 meters.

“The geological records may provide far better guidance than models since they include the whole physical system while a model will contain just those features chosen by the modeller. This is worrying as some previously unidentified feedback may act quite quickly, and cause sea levels to rise rapidly – far more rapidly than the IPCC data would suggest. Thus ‘About 14,000 years ago, sea level increased 4 to 5 meters per century for several centuries – an average rate of 1 meter every 20 or 25 years.’ [Hansen 2009] The geological records show that there have been a number of sea level changes on the order of 100 meters in the past 400,000 years, correlating with a carbon dioxide variation of 100 ppm, something similar to current manmade amounts.

Current research in Greenland and Antarctica is finding a considerable speed up of movement and break-up of ice over the past six years as water acts to move and break up ice. [National Geographic channel, Extreme Ice] Forecasts of possible sea level rise in the coming decades are being revised upwards. [Bindshadler R, Ice sheets in a warming world, S T Lee lecture in Antarctic studies, Victoria University of Wellington, May 19 2010. For further information see <http://lima.nasa.gov> and go to ‘Antarctic mysteries’, then ‘why does the ice move’ and ‘why care’.] ...

The need is for considerable real action. World emissions of greenhouse gases total about 4-4.5 tonnes per year for each person in the world's 6.7 billion population. Emissions vary greatly – a USA person puts out 20 tonnes per year, an African person 0.9 tonnes per year and a Bangladesh person 0.3 tonnes per year. ... A Greenpeace target is for a global reduction to an annual output of 1.3 tonnes per capita; others suggest that our [New Zealand's] fair share should be less than 1 tonne to stop global warming.” [Robinson 2011a]

The suggested target is around one-seventh of the current level. Yet, despite the various international conferences, and despite economic crisis and the high price of oil, global greenhouse gas emissions continue to increase, as in New Zealand.

“Global emissions of carbon dioxide – the main cause of global warming – increased by 3% in 2011, reaching an all-time high of 34 billion tonnes in 2011. ... With a decrease in 2008 and a 5% surge in 2010, the past decade saw an average annual increase of 2.7%.” [Olivier et al 2012]

New Zealand has added its share to the increase, particularly from increase in road transport.

“There has been a considerable increase in road transport (including domestic transport and cars) since the 1990 Kyoto agreement signalled an awareness of climate change, with an increase in greenhouse gas emissions of 69% to 2008. The reduction in 2007-2008, from the 76% increase to 2007, is a consequence of the large increase in the international oil price, and is not driven by New Zealand policy, which remains focussed on the expansion of roads and private motoring.”

[Robinson 2011a]

It is not generally appreciated that the estimates of greenhouse gas emissions are only approximations, with large possible errors and even, for some measures, uncertainty whether the contribution will be positive or negative.

“The decay products of the organic material added to the soil are however accounted for, and placed in the land use and forestry sector. (Thus a cow burp is part of agriculture and a cow excretion is part of land use.) The grasslands category of the land use and forestry sector produces net emissions of 1,063 Gg CO₂-e, a positive and significant contribution to greenhouse gases. This is a pretty rough estimate.

‘The combined effect of uncertainty in each of the grassland subcategories is estimated to be approximately ± 94 per cent (95 per cent confidence interval).’ [Ministry for the Environment, New Zealand’s Greenhouse Gas Inventory 1990-2008, page 179. Further quotes are from pages v, 91 and 97. For further information on uncertainties, see table A7.1 page 294.]

Many calculations of natural processes contain considerable uncertainties. For example, the estimate of methane production is highly dependent on the individual animal. An earlier report suggested a huge uncertainty of plus or minus 53%. This has been updated to reduce the estimated uncertainty.

‘The new overall uncertainty of the enteric methane emissions inventory, expressed as a 95 per cent confidence interval, is ± 16 per cent.’

The calculations for animal waste systems are particularly uncertain.

‘New Zealand uses the IPCC default values for EF3 (direct emissions from waste) for all animal waste systems except for ... manure deposited on pasture, range and paddock). The IPCC default values have uncertainties of -50 per cent to $+100$ per cent (IPCC, 2000).’

Note that the highly uncertain grasslands estimate (error range ± 94 per cent) is given to four decimal places (1,063 Gg CO₂-e). Many numbers are given to six decimal places and even a totally amazing nine decimal places.

“New Zealand’s initial assigned amount under the Kyoto Protocol is recorded as 309,564,733 metric tonnes CO₂ equivalent.”

This is bad science, and dishonest (to bewilder with science and to suggest an incredible accuracy), creating a false sense of certainty, on which considerable payments are based. No honest scientist would ever do this. The attitude of the leaders of New Zealand science is to direct attention away from climate change, as shown by the massive support for the late Professor Sir Paul Callaghan and his message of ‘innovation’ in the service of growth. At both of his two talks that I attended Callaghan has proclaimed “thank God for Fonterra” in praise of the expansion of dairy cattle, now recognised as a major polluter and significant producer of the greenhouse gas methane.

In addition, the presentation and the message conveyed are based on a misrepresentation of the carbon cycle. Both emissions and sequestration have always existed within the natural world. The problem is that human activities have upset the balance, primarily by the massive burning of fossil fuels and secondarily by changes to the environment by spreading human habitats, cutting down

forests and raising selected animals in great numbers. What matters is the total change, the sum of all emissions and sequestration, reported as net emissions. However natural sequestration by forests and land use are left out of the commonly reported measure of gross emissions, which results in an artificial emphasis on agriculture. The contribution of fossil fuel use is downplayed and attention is focused on emissions from animals (which did, after all, exist before human intervention). This allows the New Zealand government to talk loudly of agriculture and to continue to support the motoring lobby with more roads, continuing trucking and import of gas guzzling vehicles as well as to push for growth in tourism and travel with the associated high fossil fuel use. Like the rest of the world, New Zealand has for twenty years since Kyoto taken no adequate action while greenhouse gas emissions increase and the science of climate change reports increasingly severe consequences.

Concern with damage to the natural world, by poisoning and pollution, as well as by taking land for human settlement, has similarly come second to economic growth. That concern grew from the warnings of Rachel Carson in 1962 to include the establishment of one of the world's leading environmental affairs magazines, *The Ecologist*, by Teddy Goldsmith in 1970. Paul and Anne Ehrlich in 1969 and Barry Commoner in 1971, and others, had written on the stresses of overpopulation on resources and the environment. That growing awareness culminated in the first United Nations Conference on the Human Environment at Stockholm in 1972 and the establishment of leading environmental organisations such as Greenpeace and Friends of the Earth. But despite a continuing series of international meetings the damage has continued and, as previously noted, the current annual loss of species is 1,000 times or more times greater than historic (natural) rates.

People too are lacking decent habitat. Environmental, economic and social refugees (illegal immigrants) flood to Europe and the USA while boat people come across the Mediterranean to southern Europe and across the Timor Sea, Torres Strait and Coral Sea towards now Australia, often desperate and crowded in leaky old boats. Those movements have long been foreseen.

The economy that is driving human expansion and creating such stresses – without any solution in sight – is an essential element of the forecast. A major guide for the forecast was by Kondratieff in 1925, when he described a repeating series of long cycles of capitalism, passing repeatedly through the three phases of expansion, stagnation and recession. The next downturn came a few years later with the stock market crashes of 1929 and 1933 and the Great Depression, just as he had suggested. There was in that case no noticeable stagnation phase as expansion (albeit shaky) moved rapidly to recession.

This was a disease of capitalism, and of the free market. Countries with a control economy (communist USSR) were not participants; countries that shifted to a control economy (fascist Germany and Italy) soon began to expand production. The Nazi regime however soon used their increased capabilities to wage war across Europe, while Japan waged a similar war for resources across Asia and the Pacific.

When the war was over, many countries were in ruins and the need to rebuild was imperative. The considerable economic structure and organisation built up in the wartime economy together with New Deal and welfare state government activities produced a post-war mixed economy that was successful in that task – but then expansion and growth at a time of great need are always much easier than stability and curbing excess. The expansion phase continued through the next 25 years, from 1945 to 1970. Then overproduction became evident in many sectors, the economic system was strained and the USA moved off the gold standard in 1971. There followed a long unstable period marked by the two oil crises of the 1970s and a series of bubbles ('economic miracles' that each crashed a few years later, including the 'Asian miracle' and the dotcom crash), and the 1987 stock market crash.

Throughout the decades after 1970 there were very different ideas of the economic situation. The official line was of an everlasting liberal capitalism, guided by a magical hidden hand. In 1983 in debates on Kondratieff cycles in Paris, an opposite expectation was for a sudden collapse just a few years later (circa 1985), as many thought the end of the expansion and the beginning of recession was imminent. Neither fitted with my recognition of the end of the expansion phase in 1970.

Most of this total integrated forecast is derivative, based on considerable work by many scholars. My personal contribution has been to identify the stagnation phase of this Kondratieff cycle, commencing in 1970, to explore why that stagnation should continue for such a long time, and to describe the key role of excess capital. [Robinson 1989]

The global control by international agencies (World Bank and International Monetary Fund) and corporate fascism, together with the redistribution of the welfare state and considerable state spending and financial controls, held economies together and prevented collapse. With such overproduction limiting investment opportunities, excess capital moved about, drove economic bubbles (that eventually burst) and purchased public goods. Unrealistic loans were made to countries.

That understanding informed other expectations. In the mid-1980s when the Planning Council and others were forecasting stability and dropping unemployment, to disappear around 1990-1995, I forecast the very opposite – an increase to the OECD average, to 200,000 unemployed by the year 2000. On the basis of that simple concept I went completely against conventional wisdom (or wishful thinking), and got it almost right. In actual fact the increase was much more rapid, to around 210,000 by 1992.

My 1989 analysis concluded with a forecast for continuation of the unstable stagnation phase past the end of the century and for collapse to recession in the first decade of the new millennium. That is what happened. The stagnation phase of this Kondratieff cycle has lasted a considerable time, for 38 years from 1970 to 2008. It is now over and the recession phase is with us.

None of this economics of the long term (the ‘long durée’ of Braudel) is taught in universities. There the aim is not for scholarship but to prepare students for employment, making sure that any ideas will satisfy the business employer. What is taught is consumerism and the growth ethic. The Master of Business Administration (MBA) is preparation for service to corporations, not for independent and critical thinking. Universities teach popular courses in advertising and public relations, highly sophisticated methods of conditioning a population in consumption and conformity; brainwashing techniques for business control. That development was forecast clearly back in 1957. [Packard 1957 and 1961] All that is happening has been foreseen.

Despite many complaints criticising my talk of doom, the shortcomings of the forecast have proved to be those of over-optimism. The date for an outbreak of war – following the crisis of 2030 – has been brought forward to the present with the widespread current disruption and war, led by the champion of capitalism, the USA. And Turner has pointed out that the general onset of collapse may first appear at about 2015 when per capita industrial output begins a sharp decline, a forecast that may now be linked with the 2008 economic crisis. Thus 2030 may be the time of global conflagration, but much of the breakdown will occur at an earlier date.

Warnings of potential fascism have been replaced with recognition of existing corporate fascism. The modern form of fascism has been building throughout the past 50 years, and is prominent now. The combination of corporates, including the mighty Trans-National Corporations (TNCs) acting across national boundaries, has grown from the military-industrial complex to include financial institutions as excess capital has come to dominate the global economy. This is corporate fascism, inverted fascism, neofascism, the rule of the oligarchy, of the 1%, of the military-industrial-

financial complex – the triumph of the global wealthy in the current phase of the ever-present class war.

Their lobbying and think tanks, together with the revolving door of personnel exchanges connecting government, military and business allows this oligarchy to set national priorities and policies. Their advertising and ownership of media provide a massive vehicle for propaganda supporting their interests, so that their world of private enterprise, capitalism and growth is unquestioned. The connections spread through public departments where employment opportunities beckon for friendly executives and universities where so many courses are tailored to the needs of big business since employment for graduates will be found there. They buy tacit support from subservient public groups, the Non-Government Organisations (NGOs) that dutifully keep discussion by members in check.

The power of corporate fascism is protected and extended by the military branch of this global conglomerate, which expanded during two world wars and remains a massive military structure that is regularly used as a weapon of domination. The twentieth century, named the age of extremes by historian Eric Hobsbawm [1994], witnessed slaughter – including that of civilians – at a far greater scale than ever before. The United States of America has been the nation most active in military activism throughout my lifetime. Obama, the anti-war Democrat, boasted in 2012 that military spending has increased in all four years of his presidency, and that USA military expenditure was greater than that of the next ten nations combined. These are among the foreshocks pointing to the impending collapse. There have been many warlike actions forming a continuous policy over a whole lifetime.

The Second World War and the Cold War generated the acceptance of illicit actions to protect the homeland, for a greater good, in service of the nation. Lofty ideals have been much ignored in practice, with dedicated warriors readily available and prepared to leave any personal morality behind and to break the law. This is the mindset that created the hoax of an attack in 1964 of three North Vietnamese motor torpedo boats on the USS Maddox in the Bay of Tonkin to justify invasion. In response to what he described as “open aggression on the open seas”, President Johnson ordered U.S. air strikes on North Vietnam. After the 1968 massacre at My Lai, the officer in charge, Lieutenant Calley, became a popular speaker. In 1969, President Richard Nixon authorized secret bombing raids in Cambodia, with the resultant destabilisation leading to the killing fields of the Pol Pot regime. The USA later supported Pol Pot at the United Nations, when he had been overthrown with the aid of Vietnamese forces.

The CIA was active in further acts of war, as with the attack on Cuba at the Bay of Pigs in 1961, and was complicit in the overthrow of democratic governments across Latin America, such as the 1973 replacement in Chile of elected communist President Salvador Allende by the dictator Pinochet. Under President Reagan in the 1980s arms were sold to Iran, breaking an embargo agreed to by the USA, to finance the Contra rebels against the government of Nicaragua. The CIA provided considerable funds and military materiel to the Taliban in their fight against Russian Forces in Afghanistan in 1979 to 1989, thus strengthening a movement that has done considerable harm since and become a dedicated enemy of the USA.

All the evidence suggests that Bush and Cheney found people ready to set charges for the controlled demolition of three skyscrapers at the World Trade Center in 2001. This was followed by the invasion and widespread destruction of Iraq 2003, based on a pack of lies, and of Afghanistan from bombing in 2001 to outright invasion.

Since 2001 the USA has run detention centers, made use of torture systems and carried out kidnapping and rendition, operating well outside any rule of law. Always there have been highly trained and highly armed people ready and available to carry out these tasks.

Europeans and the USA bombed Libya in 2011, playing an active and determining part in a rebellion under the transparent fig-leaf of a no-fly zone. The West continued in 2012 to rattle the sabres and threaten Iran and Syria, where they and their regional allies armed rebels and continued a belligerent refusal of conflict resolution. Their support for dictatorial and repressive regimes, such as in Saudi Arabia, displays their lack of interest in democracy or the status of women.

These are just a few examples of the belligerent actions of a superpower, and its allies, with no regard for international law. President Barrack Obama, who once called for change, when in office has signed death warrants to be carried out by drones for distant extra-judicial killing, against international law, and there is no shortage for highly intelligent, highly trained, highly paid operatives to sit in Virginia killing by remote control across the world. This is the ultimate of war without participation in bloodshed, a step even further removed from the consequences than dropping a bomb from an aircraft.

The USA may be an active military nation, yet such issues are low on the list of electoral concerns; most Americans are woefully ignorant of the wider world. Anti-Vietnam activism is a distant memory, and international law is nowhere in sight. The major issues raised here, overpopulation, climate change, environment degradation and species extinctions, have been of no significance during the 2012 presidential election campaign. That lack of awareness is found in all nations, including New Zealand with its growth policy and road building, and the European Union with their focus on debt and austerity.

One key part of the forecast, continuation, has been totally and overwhelmingly confirmed. The standard run of *The Limits to Growth* has been followed with the major political and economic effort focussed on consumerism, growth and the sustainability of faltering capitalism.

The complete forecast has been a combination of information from many sources, and thus for the most part derivative. My task has been to bring together that diverse collection and to formulate the full pattern of long-term developments and future expectations, with the addition of a few such as the identification of excess capital and foreshocks, and the recognition of the power of established institutions in forcing continuation of previous policies despite their increasing irrelevance and the harm done. While *The Limits to Growth* has been a key contribution, that report does not sit alone, being a part of a wider recognition of the true challenges of life on earth within a dominant and extremely powerful species. A few dates repeating points made here provide signposts of the wealth of information that is now pushed aside and ignored.

Russian economist Nikolai Kondratieff in 1925 described the long-term cycles of capitalism, the part of the realm of higher finance, of the long 'long durée' of historian Fernand Braudel. By 1980 I had recognised the unusual length of the stagnation phase post 1970.

H King Hubbert in 1956 provided an elegant mathematical model and the best estimates of reserves available, predicting the peak of USA oil production in 1970. Later a number of others estimated a global peak during the first decade of the new century.

Lance Packard and others were describing the consumer society by 1957.

Charles Keeling in 1958 commenced measurements of global carbon dioxide. These suggested the possibility of a greenhouse, as noted in 1963 and 1965. There appeared for some years to be an opposite cooling trend by once warming became evident around 1990 the reality of human-induced climate change was accepted.

President Dwight Eisenhower in 1961 warned of the growth of the military-industrial complex, which has since strengthened to become the dominant force of corporate fascism.

Rachel Carson in 1962 discussed findings with fellow scientists and raised the alarm of widespread pollution and environmental damage. The scope of the debate was widened by Paul and Anne

Ehrlich in 1969, Teddy Goldsmith in 1970 and Barry Commoner in 1971. The spreading concern led to a number of international meetings, such as at Kyoto in 1990 and Earth Summit in Rio de Janeiro in 1992, but resulted in no adequate reaction.

The formation of the Club of Rome in 1968 led to *The Limits to Growth*, published in 1972. This was followed soon after by a number of further, more complex, global models and futures projects. Most of these withdrew from the challenge of the limits to growth that had been posed.

Together these, and related works, provide a clear picture of a civilisation bent on self-destruction. The call for a paradigm shift, a significant change in behaviour on a global scale, is not heeded. There is no recognition of the plight of a newly dominant species, with its domination of an entire planet, or of the damage caused by weight of numbers and careless activities. Historical awareness is lacking when it is most needed. There is no Nobel Prize for holistic, challenging science, dealing with the most pressing question of the times.

Two major features of this forecast have been (1) the move away from scenario analysis with its variety of 'possible', and differing, futures to one unified most-probable forecast and (2) the recognition of the strength of institutions in protecting a status quo and assuring the continuation of past policies. There has been, and there will not be, any paradigm shift.

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Chapter: The coming decades

Forty years ago forecasts were for a greatly changed future world, with massive interlocking problems of population, resources and environment, in a civilisation steadily falling apart. That future surrounds us now – it is where we are. The forecasts are no longer of some years to come; they are descriptions of where we have arrived. There will be no adequate changes; the forecast from 2012 on is of continuation, not towards sustainability or any recognition of the global plight of environment and mankind. Just as past policies, class conflict and the rule of the powerful have continued, so too current practices and policies will continue little changed for the next few decades.

The 2012 USA presidential debates drove that point home, with a truly minimal difference between the two major candidates. Neither spoke for the planet, for reduction in greenhouse gas emissions, of population control or of the rule of international law. Both supported a militaristic anti-democratic foreign policy backed by the force of a strong military. Neither promised to repeal the repressive national laws and both supported the proclamation of previous President Bush that the USA should act outside international law, with undeclared war on sovereign nations and murder at a distance against anyone that they designate as a threat. Proclaimed high ideals are ignored in action. The rewriting of international law is echoed across Europe, whose forces made a pretence of a no-fly zone while bombing Libyan forces in support of an internal rebellion. The dominance of superpower America is readily accepted by many client nations, including New Zealand.

Foreign policy has been of little importance in democratic discourse. Most Americans support existing policy, mainly by lack of interest. There may be opposition to the involvement of government in national life, but little to adventurism abroad, particularly as the killing is increasingly by proxy or at a distance.

There was no vision for the future. This is common across the Western world, and it is not a failing of expression since no such vision exists. The focus on fire-fighting, to deal with each problem in

isolation with no thought for the future has been shown graphically in Europe as Greece, Spain and Italy are forced to destroy their economies and create massive hardship, with no possibility of early recovery or of economic recovery to provide funds to repay debts. The intention is to protect as much as possible of the capital that was irresponsibly provided in the past. Yet the lenders have the greater responsibility, having wielded the greater power. If the loans were unwise, the banks deserve to lose. Their pain would be less than that of the peoples being punished for the excesses of global capital.

Peoples in developed countries continue to join the throng. Many now live much of their lives in a virtual reality of war games and chatting at a distance, quite out of touch with the real world. Conformity rules, as it always has but with a far greater central control than ever before. The majority – and this includes the majority of academics and professionals known to me in New Zealand – are happy to live as zombies, contented with a drugged life approaching that described in *Brave New World*, set in a London of 2540, doing as they are told. [Huxley 1932] Huxley was outraged by the culture of youth, commercial cheeriness, sexual promiscuity and the inward-looking nature of many Americans of his day (1932).

“All children are educated via the hypnopaedic process, which provides each child with caste-appropriate subconscious messages to mold the child’s lifelong self-image and social outlook to that chosen by the leaders and their predetermined plans for producing future adult generations.

To maintain the World State’s Command Economy for the indefinite future, all citizens are conditioned from birth to value consumption with such platitudes as ‘ending is better than mending’, ‘more stiches less riches’ i.e., buy a new item instead of fixing the old one, because constant consumption, and near-universal employment to meet society’s material demands, is the bedrock of economic and social stability for the World State. Beyond providing social engagement and distraction in the material realm of work or play, the need for reascendence, solitude and spiritual communion is addressed with the ubiquitous availability and universally endorsed consumption of the drug soma. ... Recreational sex is an integral part of society.” [Wikipedia, *Brave New World*]

There will be considerable regional differences across the world. A number of overpopulated nations, such as Bangladesh, Indonesia, Pakistan, India and (probably) China will suffer most spectacularly with widespread famine and social breakdown. Many nations will continue as neocolonies, a dependent periphery to the centre of militaristic Western corporate fascism. Some (such as Australia and New Zealand) will need to snuggle under the American umbrella, in order to protect themselves from invasion by struggling neighbours requiring space for populations suffering from loss of land due to sea level rise. Europe is not dealing well with economic problems; austerity will destroy economies and invite stimulate revolution against the resultant impoverishment.

China and Russia are former communist countries and not an integral part of the West with its inheritance of colonialism and desire for world domination. Both have evolved from centrally controlled communism to centrally controlled corporate fascism, each with a powerful military-industrial complex. They will have their own existential problems; their reaction will depend on a new generation of leaders as the ravages of overpopulation come about. Africa appears a lost cause; the future there may depend on a withdrawal of western interference and the development of a regional way forward, neither of which is likely. One great uncertainty is whether South America might escape the very worst. There is a possibility that a collection of left-leaning nationalistic governments may escape global corporate fascism to define and follow a different path.

While the breakdown will be divided unequally, all will suffer to some degree from population pressures, global crises and shortages of resources, most particularly food and water. Many will

have to deal with land disappearing beneath the waves as both sea levels and populations continue to rise.

Overpopulation is undoubtedly the major factor in the growing storm, yet will never be recognised as such. Each feature of a global breakdown will continue to be seen in isolation. The causes will be identified as particular rather than general, as local rather than global – such as a poor growing season or a political dispute. The considerable effort by the Chinese with their one-child policy has been scorned and may even be reversed. There is no hint of any further effort, anywhere, to limit natality and bring population under control.

The ongoing urbanisation with the growth of so many large cities, and supercities, is creating ‘a disaster ready to happen’. The picture that emerges is of large numbers of displaced rural dwellers moving to vast conurbations that are totally dependent on threatened supplies of energy, food and water from elsewhere – along complex transport networks – together with the challenges of urban control (over standards of building construction, for example) and the removal of wastes. The complete breakdown of many cities is highly probable. Then the internal refugees will move back out back to the countryside in impossible numbers, to conflict with residents there.

Evident problems with water supplies (with competing uses) and food production (limited by fertiliser availability, degradation of land, desertification) will grow as the demand continues to increase until shortages produce widespread famine (and then disease) by 2030.

There has been, and there will be, no adequate effort to bring the production of greenhouse gases and the resultant climate change under control. Those IPCC forecasts that assume a significant reduction in greenhouse gas emissions will be far exceeded. The certainty is for more temperature rises, increasing numbers of extreme (and damaging) weather events and steady sea level rise. There is however one great uncertainty. It is possible that before the end of the century (some time after 2030) the great ice sheets, firstly on Greenland and secondly on Antarctica, will have gone, with the ice having moved at an ever-increasing rate into the oceans. The sea level will then have risen by some tens of meters, causing considerable loss of human habitat.

A long global economic recession began in 2008. Major policies aim at recreating the growth phase and more production and innovation, with no recognition that overproduction is the basic cause of stagnation and recession. Since every stimulus has been aimed at increasing the cause and thus deepening the recession, no end can be foreseen for some years. Perhaps once again massive war will produce destruction to provide the basis for another period of growth.

The forecast global oil peak – the end of a long period of increasing production – came in 2005. That end to growth denied establishment forecasts (as by the IEA) of continuing increases in output and stable prices. The steady level of production in 2005-2011 has also contradicted some forecasts for a rapid decrease following the peak. [US Energy Information Administration website <http://www.eia.doe.gov/aer/txt/ptb1105.html> and www.theoil Drum.com/node/5395.] A third forecast of an oil production plateau, with constant production and use for some time, has proved the most robust.

“The oil peak would then take the form of a plateau, spread out over a decade or more, with considerable price fluctuations – which would destabilise the economy and then feedback to the oil industry.” [Robinson 2011a with reference to C.J. Campbell Presentation to a House of Commons All-Party Committee on July 7th, 1999; the imminent peak of world oil production suggested an oil plateau from 2001 to 2008. It is evident that an exact forecast of the year of onset is difficult since much of the information (from oil companies and governments which wish to hide information on their reserves) is uncertain; the oil plateau commenced in 2005 and is either continuing or moved to descent in 2008. This is referenced in Murphy D J and Hall C A S, Year in review – EROI or energy return on (energy) invested, page 111]

The rise and collapse of oil prices following the peak levelling-off set off economic collapse. The recession decreased demand and held the price steadier (while high) for a few years. Meanwhile efforts have been directed at finding more reserves and increasing output wherever possible, rather than reducing demand (where efforts have been minimal and for the most part left to the market with its high oil prices). The required considerable reduction in the production of greenhouse gases is ignored in practice, and there is no thought to leaving any resources for future generations.

One rule of thumb of forecasting is that events often take far longer to evolve than expected. This applies here. It is probable that efforts to support usage, to increase exploration and production, will continue and be successful for perhaps a decade or more. The eventual outcome will be both further damage to the planet by driving up greenhouse gas emissions and a more severe collapse as major oil fields do eventually run dry. The consequences then will be extreme, as so much of modern life is dependent on cheap and available oil.

There have been wars over resources, and most significantly oil wars throughout the twentieth century and into the twenty-first century. The Middle East has both profited and suffered terribly from the oil fields found there. Fighting continues throughout 2012, and will certainly continue during the coming decades.

Much of the fighting will be tribal, as between traditional tribes within nations (such as the 140 tribes of Libya and in New Zealand where the Maori are increasingly self-identified as a separate people by ethnicity) and between larger groupings on the international stage. Religious struggle between Islam and Christianity is well pronounced, by terrorist groups such as Al Quaida and the muscular American fundamentalism. Superstition will continue to dominate over science, which has become captured and neutered at the service of innovation for destructive growth. The collapse suggested by the global modelling will be horrific; the appalling behaviour typical of warfare will continue, and increase.

Meanwhile the plight of the natural world will be forgotten and talks on 'sustainability' and the like will continue as empty window dressing.

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Chapter: New Zealand 2030, a lifeboat nation

How best to weather the storm? If the early warnings had been heeded every nation and every region would have research centres, public think tanks and policy institutions gathering information and developing alternatives. Change would be under way. That is not so. Given the failure of collective awareness and lack of proactive policy, each country and community will struggle, and must take its own action based on particular circumstances. The aim cannot be to avert disaster as it is too late, but to exist. The challenge is not for sustainability – that option has gone – but for survival.

When a ship is sinking the call goes out to man the lifeboats, to get away from catastrophe to safety (uncomfortable perhaps but providing an opportunity for survival even in dangerous seas). Those whose society is collapsing around them, with social anomie, environmental breakdown, war and lack of basic resources, will want to move to a better place. Others in more fortunate places may look with sympathy on the plight of others, and provide aid wherever possible, but will have a first duty of self-preservation, to look after one another within the national community and to protect the environment from further destruction.

The two groups will come into conflict. No amount of hand wringing or wishful thinking, no appeal to take care of every person in distress, can change that reality. There is a harshness implicit in a global firestorm, in a global shipwreck. An overloaded lifeboat will sink, taking all to the bottom.

My country of birth, New Zealand, will find itself in a relatively favoured position: not horrifically overpopulated, with a temperate climate and some capacity to feed more. This will be one of the lifeboat places, a magnet to those fleeing from breakdown. There will then be tough questions to face.

“New Zealand is failing to deal with many serious problems. The environmental destruction continues as spreading cities nibble at fields and bush. Meanwhile many houses are destroyed as construction of motorways continues despite a high price for oil and coming shortages. The economy, which has become dependent on foreign capital (for 8-9% of GDP) will struggle. It will either collapse or become even more dependent and foreign owned. Unemployment and inequality will grow.

There are however still some remnants of the natural world here. New Zealand is far from the crowding and pollution of many highly populated regions, and is isolated from the worst of the coming strife. To the rest of the world New Zealand will be a sanctuary from a collapsing civilization. This is widely recognized, and we appear high on lists of survival societies as global warming impacts, and as famine and war – with the resultant floods of refugees – spread. There will soon be a flood of refugees from a hellish world, some wealthy enough to buy their way in, some distressed and starving.

This future is the continuation of today’s familiar world, where all these things have been happening for decades all around the world. They will just be another order of magnitude greater.

So New Zealand will be a place of escape, a favoured place, where people may survive far from swirling disaster and conflict. How can we react to the demand for places on one of the world’s lifeboats? The harsh reality is that the time is coming for some very tough decisions. Do we allow ourselves to be overrun or do we man the barricades?

‘Our first imperative is to survive, but soon we face the appalling question of who we can let aboard the lifeboat? And who must we reject? There will be no ducking this question for before long there will be a great clamour from climate refugees seeking a safe haven in those few parts where the climate is tolerable and food is available. Make no mistakes, the lifeboat simile is apt; the same problem has faced the shipwrecked; a lifeboat will sink or become impossible to sail if too laden. The old rules I grew up with were women and children first and the captain goes down with his ship. We will need a set of rules for climate oases.’ [Lovelock 2009, page 161]

Movements of boat people, refugees fleeing social and environmental misery, are now common across the world. In our neighborhood, such movements to Australia, now under way, will increase as strife grows across Southeast Asia. The possibilities for the New Zealand future are:

The country will become overcrowded with refugees, with the high population numbers bringing environmental depredation and resource shortages.

The country will be colonized by wealthy refugees (from China, the USA, Europe and elsewhere) who will insist on strong defenses to keep out the masses.

The country may move to self-sufficiency with a limited population, again requiring strong defences and tough decisions on the few who can be allowed in.

While the first option is widely favoured amongst ‘liberal’ thinkers (still referred to as ‘the left’), the consequences are not well appreciated; lifeboat New Zealand will soon sink under the weight of numbers.

Many elements of the second option are well advanced; the wealthy are currently favoured as new immigrants. All that is needed is a much stronger and brutal defence force. New Zealand will be a colony ruled by strong-armed leaders in the interest of the new owners. This is the probable pattern for the coming decades.

The third option is the least likely of the three.” [Robinson 2009b]

In the above quote, Lovelock has stated the obvious by thinking the unthinkable. The “old rules” may not have been followed in practice, but form some of the basic maxims of a generous civilisation, calling for equality and for respect and protection of all fellow human beings. They can no longer apply. Already boat people and floods of refugees (to Europe, to Australia, to the USA), have forced the abandonment of such claims to universal human rights. Naval forces turn boats back to where they came and a massive fence along thousands of miles of border restricts movement from Mexico to the USA. Such movements are increasing and will become overwhelming in the next two decades. The response, for protection and national survival, will then strengthen.

Collective decisions on just what to do are guided by national desires and aim at some preferred life style. A desire for easy living on quarter-acre sections with uncrowded beaches and ready access to rural areas and national parks would point to a low population (as in the New Zealand of the immediate post-war years of the 1940s and 1950s), much less than that of 2013 with its motorways intertwining across sprawling Auckland. That would allow natural areas to recover and thrive without the pressures of expanding human habitat, and allow space to live. The opposite desire (also surely worthy) to take the very last refugee who can fit in would lead to the opposite picture, of a crowded place with the natural world pushed back and potential shortages of resources such as energy and food, as it has been in many overdeveloped and overpopulated regions.

The decision will be made by those who dominate both in the media and in influence on the ruling party and the Cabinet of this unicameral parliament. Events in New Zealand will then be defined by the new guiding principle of racial differentiation, of ‘partnership’ between Maori and ‘the Crown’, which has come to replace the previous desire for equality. [Robinson 2011b and Robinson 2012] Despite the resultant division of the nation, demands for separate government (tino rangatiratanga, chieftainship and Maori control of all things Maori) by Maori collectively and by separate tribes have been greeted with sympathy within the current government.

“National parks are going. A deal with Tuhoe will ‘wrest the pristine Te Urewera National Park out of Crown ownership’, to be governed initially by ‘a board comprising Crown and Ngai Tuhoe nominees’. After a five-year review, Tuhoe hope that full control will be handed over to them. The deal also includes mana motuhake, or self government – including a target of Tuhoe control ‘over the delivery of government and iwi services to its communities and peoples.’ [Tracy Watkins, “Tuhoe deal puts bitter grievances to rest”, Dominion Post, September 12, 2012] The suggestion for a separate Maori justice system has been on the table since 1988. [Jackson 1988] Here is the recipe for a Bantustan-style break-up of the nation.” [John Robinson, “Wellington settlements and consequences”, chapter in Robinson et al 2013]

Such sympathy for tribal independence comes despite displays of open rebellion such as training in bush camps for apparently armed insurrection by a largely Tuhoe group led by Tame Iti, who was sentenced to two-and-a-half years jail for convictions including five firearms charges and possessing Molotov cocktails. The complaints of ethnic inequality and the increasingly extreme claims will continue to generate anger and to foment tensions among such dissatisfied extremists.

One possibility for the coming years is that some Maori tribes will revolt and return to traditional warlike culture, as legitimised and supported by the Treaty industry, by those historians who distort the past and by politicians who propose Treaty settlements, written in secret, that provide additional rights to Maori and point to possible self-government in a break-up of the nation. The dominant wealthy will happily oversee the Balkanisation of the country to justify their own enclaves – private islands, estates and the like. The liberal capitalist worship of ownership trumps all else.

When I wrote of the Treaty grievance industry in 2011 and 2012 I had noted the obvious similarity with the imposition of growth innovation on science and the crushing of any alternative scientific thought. The divisive process continued unabated through 2013, being pursued vigorously by propagation of ideas of two separate peoples and by false claims of shocking wrongs done to Maori by the ‘colonial’ government in the nineteenth century. For example, the national museum, Te Papa, ran a series of ‘debates’ that were simply one-sided presentations by disciples of ethnic separation. The director, Claudia Orange, has refused my request for real debates where all sides can be presented. Again the similarity with global science is evident, for the Royal Society of New Zealand has several times refused my challenge to a debate on the limits to growth. The establishment protects itself, finding always willing servants. That Te Papa series was followed a month later by another similar set of ‘debates’ at Victoria University, a Constitutional Review Debate Series organised by the New Zealand Centre for Public Law, recycling many of the previous speakers and including a particular separatist session on “Maori aspirations for constitutional change”, including “consideration of alternative models of Maori-Crown relationships, the development of a kaupapa Maori or tikanga-based constitution, and Maori constitutional aspirations in the context of indigenous peoples’ rights at the international level.” A racist constitution is openly proposed!

This new orthodoxy, which is preached with religious fervour, is false, inaccurate and misleading. Many of the extravagant claims can be readily checked and countered. Thus when historian Danny Keenan (PhD from Massey University, employed for a time by Victoria University) said in a newspaper article that “Maori had to wait 27 years after the 1840 treaty before being granted the vote in 1867” [Danny Keenan on “Maori focus on constitutional moves” in Wanganui Chronicle, Saturday 16th March 2013)], I countered with the facts, that:

“Representation and the right to vote had been evolving since the colony was formed. In 1853 all men over 21 who owned property (with no distinction for race) could vote; around 100 Maori, mainly leaders, were enrolled (by 1860 some 17% of the electorate were Maori).”

He replied to my letter to the editor with one of his own, commenting on one of my points concerning 1867 taxation payments:

“Robinson also asks why I know that ‘Maori paid most of the taxes in 1867’. ... I know this because the MP introducing the act, Donald Mclean, said so ... [Mclean said] Maori paid the greater part of the country’s taxes.”

So I looked up the records in that years Parliamentary Records (Hansard) and found McLean’s actual words in the second reading of the Bill introducing the four Maori seats as:

“... paying very largely as they do to our revenue, assuming that they pay £40,000 to £45,000 a year, which would not be a very high calculation considering the great sources of wealth which they are possessed of ...”

This estimate suggests that Maori contributed one-fortieth of the £1,787,000 finances of the country (ordinary plus territorial) – far from the greater part. Keenan was lying.

Such misinformation is unforgivable. It is also both common and too often unchallenged within the conventional wisdom. Two examples that have particularly interested me are the false claims by

demographer Ian Pool that the deaths of one-third of Maori in the intertribal warfare of 1800-1840 had no significant impact on the population and that there was no female infanticide at that time. Once that foolishness is corrected, the cause of the enormous drop of the Maori population through the nineteenth century can be shown to be the considerable demographic imbalance created by those decades of killing and disruption. [Robinson 2011b and Robinson 2012]

History is being rewritten, as when describing events at Parihaka where Te Whiti and his followers were building on government land and refused to move despite efforts at negotiation. When government forces came to arrest those defying the law (who had a stockpile of arms), there were no casualties, one child's foot trodden on accidentally by a trooper's horse being the only injury. Yet the Waitangi Tribunal, which has assumed much authority, has said, "The invasion of Parihaka must rank with the most heinous action of any government, in any country, in the last century", calling it "the holocaust of Taranaki history".

Talk of holocaust has been followed by claims of ethnic cleansing, as this from Auckland historian Paul Moon.

"The result was a people ethnically cleansed from many of their traditional territories and facing being wiped out altogether." [Paul Moon, New Zealand Herald website Friday Mar 22, 2013]

This is outrageous, so I decided to follow it up and asked Moon for his sources for such a claim. He was good enough to reply.

"As far as the sources I relied on, these fall into three major categories. The first is material generated for and by the Waitangi Tribunal, the second is Judith Binney's book *Encircled Lands*, and the third is my own series of interviews with the Tuhoe tohunga Hohepa Kereopa." [Paul Moon, email to the author]

I am familiar with many Waitangi Tribunal reports and know that they cannot be accepted as reliable sources. Binney describes how Tuhoe actively supported and joined in attacks led by the renegade Te Kooti. Te Kooti and his followers were in open rebellion, killing many defenceless people, Maori and new settler alike.

"On Tuesday November 10, [1868], before dawn, the Poverty Bay settlements were attacked and fifty-four persons – men, women, and children – indiscriminately massacred. Neither sex nor age has been spared, the returned prisoners from the Chatham islands having killed every one that they could reach." [Daily Southern Cross, 2 December 1868, quoted in Robinson 2012]

Binney describes how Tuhoe joined Te Kooti in rebellion and killing.

"Tuhoe's involvement in this escalating eastern war began in earnest in 1869. The decision to support Te Kooti was not taken lightly. ... The military alliance of Tuhoe with Te Kooti, woven in February-March 1869, was the direct consequence of the government's actions. ... The occupation of Whakarae initiated a new military campaign for Te Kooti and the Urewera leaders in the eastern Bay of Plenty. Behind the campaign lay a pact forged between Te Kooti and the leaders of Tuhoe at Tawhare ... the pact was a binding covenant."

Rebellion was answered with government action, destroying the base for support of Te Kooti. This was the inevitable response in a time of war.

"Whitmore considered he had fulfilled his 'double objective of punishing the mountain tribe and of destroying the store of provisions'. ... the expedition had wrought such damage that Tuhoe ... could not now support Te Kooti and those with him." [Binney, pages 143 and 155]

This is the necessary action when faced with a guerrilla rebellion in the bush, which has the support of a local people while threatening all others with attack and death.

Moon's books, which tell of the thoughts of a Maori tohunga (or priest of the old traditional culture), include no reference to any events describing ethnic cleansing. [Moon 2003, 2005 and 2008]

Both 'holocaust' and 'ethnic cleansing' are highly charged emotive terms with clear meanings that are by no means justified by the New Zealand reality. There was no holocaust or ethnic cleansing by the government against Maori. There was, however, a holocaust and there was ethnic cleansing by Maori against Maori in the savage intertribal wars that came to an end with the coming of the colonial government in 1840. There is great danger for the future as well as to the past by inventing horrific fables, rewriting the past, building distrust and fermenting mutiny. But as with the question of global limits, those who control public institutions refuse any open debate. A number of us have done whatever we can to voice the alternative through Tross Publishing [Website www.trosspublishing.co.nz], with publications including several of my books and a recent joint effort by seven authors (those listed together with the editor and publisher, John McLean) [Robinson et al 2013].

There are many other stories to tell – such as Ngati Toa getting \$10 million for loss of marine empire – recompense more than 170 years later for the loss of rights to rove across Cook Strait to massacre a rival tribe. There is so much ridiculous nonsense going on. And there are always people ready to take moneys offered, and to make up whatever fantastic stories required. There is no great difference in the economic behaviour of the various ethnic groups in New Zealand. Selfishness is the name of the game, and prominent Maori are as ready as anyone else to line their own pockets as 'neotribal capitalism' evolves within the framework of corporate fascism. [John Robinson, "Wellington settlements and consequences", chapter in Robinson et al 2013 and Robinson 2012, page 243] There have even been a few unsuccessful attempts to produce tribal passports to allow the entry of foreigners into the country. The future will see more of that; with self-government a tribe might bring in and settle refugees, for payments, acting as an independent authority. None of us know what the words mean, or imply. Already ethnic conflict and the effective division of the country is evident, and is steadily increasing. This lifeboat nation has been weakened and has lost any capability of organising a suitable collective, unified reaction. Squabbling on a crowded lifeboat is foolhardy.

As a South Pacific nation New Zealand has a responsibility towards small neighbouring islands, which fails to enter the debate over where we are all heading. Despite knowing that low-lying islands will disappear beneath the seas, greenhouse gas emissions have risen. Discussions and advice are careful to dodge the central question of overpopulation of small and damaged islands, and of their own responsibility for their increasing numbers. A fully aware policy would take such matters into account.

Any such deliberation would have to deal many difficult questions, including protection against a wave of refugees. The Australian reaction has been to develop closer ties with the might of the USA. Even if New Zealand wishes to limit immigration it will continue to be sought as a lifeboat. Many peoples will want to come and there will be a real threat of invasion. Here is an existential challenge, whose solution for New Zealand could involve the same move, an acceptance of the American superpower and its abuses.

New Zealand, as many periphery nations to the center of the USA and Europe, is caught in a trap. Any move to independence will run foul of the many promises and treaties made by past governments to join in the globalised world of liberal capitalism. Withdrawal from that straightjacket will result in punitive action and will risk foreign intervention. Is the one superpower a protector or a threat? Perhaps both.

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Chapter: What to do

This has been a book about a forecast, about what was expected, of how much of it has come to pass and how the pattern will continue into the future towards the inevitable crash. The forecast, followed and improved through forty years, has eventually described a failure of cultural awareness and a refusal to change. In my words of 1989, this is “how the fruits of human progress are destroying modern society and the environment”. [Robinson 1989]

Almost every book warning of massive problems and looming crises includes a final hopeful chapter telling of a solution and a way out, as the author pulls back from a frightening reality to a soothing homily. Surely, they say, human intelligence will solve the problem. Or the deity would not allow such a global mess to come about. Surely then all will be well.

I cannot end with a word of optimism. It is just not possible. I cannot play that game, where the view forward is blurred by donning rose-tinted glasses, holding to a belief that while the past has been full misery and woe, a bright new future lies ahead. I have made an effort to take off those glasses, to escape the imprinting, conditioning and brainwashing of our times. The resultant picture is not pretty, and it is not the one I would desire. The world needs a paradigm shift. But this would imply a revolution against corporate fascism and a shift in major religions – and they won’t allow it. Faced with the evidence, any suggestion of grounds for optimism is absurd.

Not that it is difficult to formulate a basic set of policy directions in recognition of the complete colonisation of a finite planet. Here are a few essentials.

Limit or reduce population everywhere with one child per woman and no migration.

Reduce use of oil and coal by 80% in a few years. Phase out cars. Reduce tourism with a campaign against flying. Increase the use of teleconferencing. Ask people to stay near home, for work and for play.

Increase taxes and build up the public sector. Nationalise (or most often, take back) key infrastructure such as electricity provision and banks. Provide a job for every applicant; extend social welfare with better care for the handicapped and elderly.

Dismantle the advertising industry. Free science and universities, health and education by handing control to the practitioners. Destroy the grip of corporate capitalism.

The move would be away from an insistence on growth towards sufficiency within lazy socialism, with a reduction of the overall human impact on the earth and provision for basic needs and a reasonable life for all. This could (in a perfect world) be the basis for the needed change.

There is one other obvious collective path. This magnificent planet would be a better place if human intelligence had never existed. Brutal logic tells us that the best that humanity could do for the precious natural world would be to disappear. The planet is in peril, and it is hard for any one person to come to grips with an individual life as one insignificant member of a teeming destructive organism, a species colonising every ecological niche and destroying its home. One solution, as described in a short science fiction story by James Tiptree Jnr (pseudonym of Alice Sheldon) in 1969, would be the destruction of humanity. The Last Flight of Doctor Ain tells how Ain, who loves the world dearly, has developed a deadly new disease to wipe people off the surface of the earth and thus to save it from destruction. As one sign seen at a rally has it, “Save the planet, kill yourself”.

That is all coldly logical but impractical, and I don't like it. A lone or group suicide would leave the majority intact, with the problem unaffected. It is sad to have commenced a lifelong effort with the hope of betterment only to consider such a drastic idea. Life is too precious and I will be hanging in there as long as I can, to do whatever I can even though I know just how insignificant the efforts of any one person can be. I do not recommend the nihilist solution of suicide, rather the opposite.

Each person should live their humanity to the full, should refuse to become a zombie brainwashed by consumerism or a cog in the mighty machine of capitalism (as Chaplin so ruthlessly parodied in Modern times), should refuse to join the line to be neutered with the rest, should be a conscious and thinking person and not live like another one of Pavlov's dogs. Each of us should be alive and kicking, not a vegetable, and not an inhabitant of 1984 or the Brave new world.

"Cogito ergo sum, (I think therefore I am)." [René Descartes 1637, La discours de la méthode]

Even Don Quixote is more alive than the zombies who man the offices of corporate life – who is then the fool, one who tilts against windmills or the subservient cog in the machine? Let us be ourselves, celebrate the triumph of the human spirit, go down with all flags flying, in living as in love.

"Tis better to have loved and lost
Than never to have loved at all."

[Alfred Lord Tennyson 1850, In Memoriam A H H, canto 27]

As with love, so too with thinking and using a brain. Both for societies, as for individuals, a massive challenge can only be dealt with by vigorous thinking, making full use of human capabilities and moving well outside the box of a growth philosophy that is the root cause of the problematique.

This is a planetary problem, requiring universal global change with international coordination. That will never come about. Global corporate fascism will never allow its interests to be challenged. Both within the developed West and elsewhere primitive religions block recognition of the need for a paradigm shift. The few hopeful instances of a search for a better way all too often have a focus on overcoming poverty by providing growth for their people, not anything new.

There is much that is theoretically possible within a unified nation. With the resources and power of the state a collective people could destroy corporate power, could set up think tanks for the people, organise and fund independent science, consult widely and develop an understanding and policy for the modern world. A nation has the wherewithal to take on the revolutionary changes demanded of a paradigm shift from growthmania to a steady-state economy and lifestyles. With a place in the United Nations, such a country could provide leadership and the example of positive action. Instead of dragging heels on climate change and seeking comparative advantage in a competitive world, a government could take on the task of a massive reduction in greenhouse gas emissions – now, not over many decades. But this is not a book of phantasy and dreams. No people are moving down that path.

Modern leaders do not lead. They follow the dictates of directed 'popular opinion'. Election policy is defined by opinion polls and surveys. After the election is over, decisions are determined by lobbyists. The 2008 and 2012 presidential elections in the USA provide a clear illustration of the process. In 2008 Barack Obama appeared to break from the pattern and promised change. As president he has continued most of the policies of George Bush; Guantanamo Bay did not close, the Patriot Act has not been withdrawn and drones continue extrajudicial killing in foreign countries. He is captured. In 2012 George Romney swung to the right in the race for nomination, then to the

middle in order to attract the swinging voters. Where is the real man? Perhaps that does not exist as Romney is only a front for the real rulers. They turn out to be Tweedledum and Tweedledee.

The populist, 'left' parties have offered little other than acceptance of far-right policies and steady-as-she-goes stewardship. These may have been calmer periods, with Clinton in the USA, Blair in Great Britain and Clark in New Zealand, but the massive changes of Reagan and Bush, Thatcher, Douglas and Richardson, have not been rolled back.

Much New Zealand debate has been firmly in the grip of displacement activities. A wide-ranging review of New Zealand's constitutional arrangements, set up as part of a confidence and supply agreement between the coalition government partners, National and the Maori Party, intends to formulate a racist constitution based on rewriting of the 1840 Treaty of Waitangi, and completely overturn the original promise of one people under one united administration, with equality in government and before the law. [Robinson 2012, page 255]

Since the situation is so manifestly hopeless, it is entirely reasonable for a person to opt out, to move into a situation that may be sustainable in a collapsing society, perhaps in a commune or (for the wealthy) a gated community. But that leaves the major existential issue of our times intact.

"The reasonable man adapts himself to the world: the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man." [Shaw 1903]

What can the 'unreasonable man' then do? It is left to the individual to stand up and be counted, to make every effort to bring about change. Since little can be done by one person alone, an evident first step is to join or form a group, a team of like-minded people to open up the debate, consider alternative policies and together make contact with others and spread awareness.

The Island Bay World Service was formed to do just that. [The Manifesto is included here as an appendix.] Activities over four years and more have included writing and distributing texts, opening discussions with other 'like-minded' groups, talking with political parties, with Members of Parliament and local body councillors, raising issues with academics, writing letters and articles for newspapers, even talking on television. The impact has been nothing, zilch.

The aim was to come together as a community think tank to speak the unthinkable in a challenge to a status quo that is heading resolutely down a path to destruction. Efforts to broaden the debate and challenge current beliefs immediately ran up against the reality of group dynamics. The basic desire for power of pushy, sharp-elbowed people operates even on the smallest scale, in a community group or non-government organisation (NGO) where there is no imposed democratic structure. A majority are well-meaning and non-threatening, all too ready to conform with group ideology as defined by a guru, to follow and not to challenge. Many organisations colonise the middle ground, trimming any sharp edges from ideas and seeking mass membership by offering what they perceive people already want. The focus is on happy-clappy displacement activities and away from any stimulating, thought-provoking, exciting and controversial ideas that (they think) might deter potential members, and that would certainly displease corporate sponsors.

There has, however, been one significant benefit to each of us in this small group. Alone I have been easily shut down in a variety of forums and organisations. But once a group had come together and each spoken out, saying what was refused elsewhere, I gained the self-confidence to speak clearly. Most often this could only be in a short statement or question at the close of a meeting, as offers of a presentation and challenges to a debate have been refused. Quite often a few in the audience would come up later to agree with the points raised, at other times I would be looked at askance as an unwanted interloper.

In experiencing the expected failure, we have together at least been able to refuse to live a lie, to each refuse to be a controlled 'reasonable man' adapted to a crazy world.

* * * * *

Chapter: Despair

Some years ago, the one place that I wanted to visit was the Alhambra in southern Spain. We eventually spent a quiet day there. This set of gardens and buildings, with the most pleasing architecture imaginable, a gently tinkling line of simple jets of water, even water channels in the stone balustrades of steps running clear fresh water to dip your hands into in that heat, speaks of an intention to experience and appreciate life to its full. It is written on the gates of the Alhambra:

“Give him alms, woman, for there is nothing in life,
nothing so sad as to be blind in Grenada”

The world is such a marvellous place, where everyone can lead a good life without harming one another or destroying this planet. Yet this civilisation is failing, and falling apart. The majority of peoples are truly blind in Grenada, and none more so than the 1% of corporate fascism as the destruction of that beauty continues apace. It is so obvious, so terribly simple.

“So, we’ll all soon be living in towns and cities and will forget where we come from. We’ll forget who feeds us. That is the earth, I think. And yet we’ll forget her.” [Mma Ramotswe speaking in McCall Smith 2012, page 258]

Like every writer I can try to end on a high note, a word of optimism. I once had hoped for collective wisdom, for science and rationality to be listened to. I did not believe that the collective humanity could be so stupid as to sleepwalk into disaster. Now that they have done just that, and are hell-bent on continuing down the destructive path of growth, nothing is left but despair. Life is absurd; there is no meaning in mindless consumption and conformity with the massive conditioning of advertising and modern media.

“To-morrow, and to-morrow, and to-morrow,
Creeps in this petty pace from day to day,
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusty death. Out, out, brief candle!
Life’s but a walking shadow, a poor player,
That struts and frets his hour upon the stage,
And then is heard no more. It is a tale
Told by an idiot, full of sound and fury,
Signifying nothing.”
[Shakespeare 1606, Macbeth Act 5, scene 5, 19-28]

Nothing is left but a scream as the world collapses and so much beauty is destroyed for the selfish benefit of a few, through the wilful ignorance of the many.

“Do not go gentle into that good night,
Old age should burn and rave at close of day;
Rage, rage against the dying of the light.”
[Dylan Thomas 1951]

So I rage at close of day for this earth, for this people, full of potential yet brought down by its own stupidity and hubris.

I know that by voicing these concerns I am banging my head against a brick wall. But a few of us insist that we live and think, and refuse to join the ranks of the Pavlov's dogs who inhabit the universities, public bodies, the media and community organisations.

"This at least gives us a feeling that at last we are our own men, no longer puppets on someone else's string.

'If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music which he hears, however measured or far away.' [Henry David Thoreau]

It is however not all doom and gloom. I have been heartened to find that my forecast of human behaviour has been so accurate. For the connoisseur of black humour there's a lot of fun to be had. Those of us who saw it all coming and were thrown aside can now enjoy our glee, as so many forecasts prove right. After all, the future does come by sooner or later. Thus we have been heartened to observe:

the oil peak came on time,

and forced the expected financial crash;

the dysfunctional world continues with war and butchery;

the call for eco-fuels takes cropland and forces up the cost of food to the poor;

water is an ever-more resource;

other species are going extinct.

I want to live on. Then on my deathbed some 20 years hence I can triumphantly chuckle,

I told you so.

No one will be listening." [Robinson 2009]

* * * * *

Chapter: Appendix: Manifesto of the Island Bay World Service

Speaking out

"The history of life on earth has been a history of interaction between living things and their surroundings . . . Only within the movement of time represented by the present century has one species acquired significant power to alter the nature of the world." [Carson 1962, page 2]

"The global environment crisis is, as we say in Tennessee, real as rain, and I cannot stand the thought of leaving my children with a degraded earth and a diminished future." [Gore 1992, page 16]

MANIFESTO

Aims

We will publicise the extent of the set of interlocking crises now evident on the world stage and call for adequate action from the public, other environmental groups and government (both local and

national). In doing so we will speak where necessary outside the current conventional wisdom with its emphasis on growth and 'business as usual'.

Preamble

We are as a group joined round a table to share a meal when a call of 'fire!' is heard, to be met with general denial, with a response of 'go away we are busy'. The meal continues uninterrupted. The problem will become truly critical when the fire reaches the dining room – too late to stop its spread.

We repeat the Churchillian experience of calling people to wake to a looming danger while crowds cheer Chamberlain's "peace in our time" celebration on his return from talking with Hitler.

So we live in two worlds with a split reality. In one world we understand that the earth is deeply troubled by human activity, and we read each day of events describing the extent of the current global crisis. In the other, we hear calls for growth – of economies, population, and work – and see large vehicles parked in rows outside the supermarket. One world tells us of a looming oil shortage, the other acclaims V8 Supercar races in city streets, glorifying useless consumption.

The fire which was threatening is now upon us. Those many global problems are no longer a problem for the future, but have become daily experience. Meanwhile denial continues.

We will repeat the efforts of the awake few of previous generations and call for awareness, and action. We will be the 'think global' addition to 'act local' initiatives, asking others to think of the whole and to 'walk on two legs' as complete human beings instead of fiddling while Rome burns around us.

The world in trouble

The world is within a set of interlocking crises. This is not a forecast for a troubling future, but a description of the current reality. Those events are reported daily in the media, and include:

Climate change is occurring and ice is melting at both poles.

The price of oil has boomed and shortages can be foreseen as the peak of global oil production passes.

This is nothing new. When the USA oil production reached its peak in 1970, that set the scene for the subsequent oil price rises, shortages and carless days.

The war over oil in Iraq is the most recent of the many struggles over oil supplies.

The world population continues its growth, adding 3 billion (3,000,000,000) each 40 years – from 3 billion in 1960 to 6 billion in 2000 and 9 billion in 2040. The projected failure to feed that number threatens starvation, disease and war.

Most recently the production of subsidised biofuels has taken land from food production. Food stocks are dwindling, and food prices are soaring.

The development of China and India, and their efforts to join the over-developed world, put greater strain on finite resources and pollution stains the air of Peking.

Years of globalisation have led to the current collapse.

The full extent of the crisis now (in 2008) can be understood when we recall that 36 years ago in 1972 The limits to growth, a report to the Club of Rome, forecast a series of global crises (leading to possible mass starvation and population collapse) for around 2030 – while failing to take into account the end of an oil-based economy, and not knowing of global warming (which became recognised in the 1980s). The situation has become much worse since 1972 and yet we live in a

civilization with a continuing fixation on growth – in both population and economic activity. This is a flat earth society, on a world without end, not awake to the finite nature of a spherical planet.

It is too late to stop these trends, and the point of widespread damage has been passed. Sustainable growth is an oxymoron. Indeed a move to sustainability is now impossible, under any reasonable definition of that slippery word. The issue is now survival.

A moral imperative

As Al Gore pointed out in his film *An inconvenient truth*, any decision on the wise use of a finite resource such as fossil fuels, must be based on a moral imperative. The current growth mentality of global capitalism is based such a moral judgement – to use resources as fast as possible, to build a non-sustainable society on a resource base which will soon be gone, and to rob future generations of their share.

We find ourselves living on a finite planet. People have increased in numbers until we now occupy all the space available. The increase in knowledge has led to an economic development which provides a high standard of living for many, but which has now reached the limits of the possible. In that process peoples have changed the surface of the globe and driven many species into extinction. Now a series of species extinctions is happening.

That rule and control bring a responsibility for the well-being of other species as well as other peoples, and that responsibility for the whole is shared by every community of every size – from Island Bay to Wellington city and the nation of New Zealand.

This requires action. As oil is in short supply, we should act to conserve and reduce use at every level. As the world population is far past any sustainable limit, we should act to stabilise and then reduce our numbers. And much more, as growth could be replaced by a stable and caring conserver society

A way forward

Many current statements and activities directed at ‘sustainability’ are little more than displacement activities, quite minimal and out of proportion to the challenge – the only outcome being to act out a concern and assuage anxieties without any real impact on the global crisis.

Since global warming is caused by the use of fossil fuels, the need is to reduce that use considerably – not to take up the displacement activity of trading in carbon credits (where those who were planting trees anyway get an extra income while those who should cut production of greenhouse gases continue business as usual and pass the cost of the credits on to the customer), nor to waste effort on dreaming up a fart tax on cows, or the like. In any case, the cost of oil will go on rising while the availability will be sharply curtailed by both the limits of supply and the efforts of those more powerful than us to get their hands on a dwindling resource. There must be added taxes on larger personal vehicles, requirements of fuel efficiency on new vehicles, carless days and a ban on wasteful use of fuels such as motor races.

The entire world must stabilise and then reduce population to a fraction of its present size. Us too. We must encourage small families and accept childless couples as playing a positive role. Town planning must be based on a preferred population for each area, and not predicated – as now – on a desire for growth.

A debate is urgently needed to develop ideas of a new economic and social philosophy to replace growth-oriented market- based global capitalism, building on those systems which have worked in the past – and in particular the post-war New Zealand mixed economy (which was destroyed in 1984).

Since that debate was lively in the 1970s, we may reach back to the ideas of that era. When new technologies were improving so rapidly, many thinkers imagined a shorter working week, making good use of the improved efficiencies. Why did that not happen? A leisure society, a conserver society, is possible. In so many ways, a society of reduced consumption, without the pressures of growth in population and consumption, will be a better place to live in, with the emphasis on quality of life and equality of material wealth. That is our moral society.

Our actions must be forthright to capture the attention of a public bombarded with calls to consume and borrow, told to live selfishly with no thought for tomorrow or understanding of where we have been heading. We intend the radical, challenging voice that is needed to stir up discussion on issues like population control and to take a quite hard-line approach on issues. We will stimulate the required debate and build a blueprint for survival in the coming decades of global stress.

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END

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Thank you for taking the time to read my book. The future of all of us and this planet is surely the most important issue facing us, particularly now that the well-evidenced and researched warnings of forty years ago are coming to pass all around us. Yet, such is the strength of the controlling oligarchy and the subservience of the brainwashed majority, the whole topic is rejected to the sidelines. Meanwhile the few who speak of a global collapse foolishly insist that there is yet hope. It is too late to prevent the global storm. The best that can be done is to become aware of the immense crime that a selfish few have done to young people, other species and the unborn. Then ride the storm.

Please take a moment to leave a comment at the site from which you downloaded. Above all, please tell others, through your twitters and blogs and networks. We must all escape from the role of subservient zombie. This book is free; your interest and feedback is the only payment I request!

You may also contact me at johnrob@paradise.net.nz

About the author

Dr John Robinson was born in Auckland, New Zealand in 1940. He has a BSc and masters degrees in mathematics (MSc) and physics (DipHons) from the University of Auckland and a doctorate (PhD) from MIT. He has lectured at several universities and worked as a research scientist – initially applying mathematics to physical problems, before moving to wide-ranging interdisciplinary studies for international organizations, combining information from global models with historical accounts and inappropriate cultural continuity at times of great stress.

While at Applied Mathematics Division of the DSIR in 1974 he began a career in futures research. Subsequent wide-ranging interdisciplinary work has included contract work for DSIR, OECD, UNESCO, UNEP, UNU, the New Zealand Commission for the Future and the USA Foundation for the Future as well as contacts with the Club of Rome. Despite the lack of official interest in an overview of global developments and the challenge to the growth model in New Zealand since 1984, John has continued his research. His analysis of long waves in capitalist economies (Excess capital, 1989) forecast the current depression and he has described the New Zealand situation during the coming global crisis on in NZ 2030, the world's lifeboat (2009).

Since 1986 another part of his work has concerned Maori socio-economic issues. The considerable change of culture of Maori society when over three millennia of separate Polynesian culture ended with the coming of Europeans provided an example of the problems of a comprehensive culture

change (or paradigm shift), as would be required if modern global society were to survive in a overpopulated and overstressed world. In each case a completely new situation arose. In each case the old culture persisted during a period of considerable disruption – now moving to a storm peak for global civilisation.

John has published scientific articles in international journals, written many reports on global issues, edited a couple of books and written several books:

Excess capital (1989, Technology Monitoring Associates, \$25),

Rebuilding New Zealand (1994, Technology Monitoring Associates, \$15),

Destroying New Zealand (1996, Technology Monitoring Associates, \$15),

New Zealand 2030, the world's lifeboat (2009, Island Bay World Service, out of print),

Cars at the end of an era, transport issues in the New Zealand greenhouse (2011, Friends of the Earth NZ, \$20),

The corruption of New Zealand democracy, a Treaty industry overview (2011, Tross Publishing, \$20)

When two peoples meet, the New Zealand experience (2012, Tross Publishing, \$40), and

Twisting the Treaty, a racial grab for wealth and power (2013, co-author, Tross Publishing, \$40).

Much of that research and experience has been made use of this book.

The first 3 are available from me. *New Zealand 2030, the world's lifeboat* is out of print. *Cars at the end of an era, transport issues in the New Zealand greenhouse* is available from Friends of the Earth NZ at PO Box 5599, Wellesley Street, Auckland 1141. The last 3 are published by Tross Publishing, website www.trosspublishing.co.nz, email address trosspublishing@hotmail.co.nz.

Go well. It's a beautiful world.

John Robinson, Wellington, April 2013