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Welcome to the anthropocene

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ABSTRACT

The paper argues that humanity's impacts upon the world have ushered in a new era that has been called 'the Anthropocene.' The paper argues for a number of shifts in focus in individual and social efforts to understand and deal with change. These include: becoming more aware of current contradictions; embracing insights into the state of the global system; acknowledging, valuing and applying signals of change; cultivating scepticism about the assumed importance of science and technology; exploring the potential of human, cultural and institutional innovation; and designing and implementing a range of high quality responses – especially in education. The critical role of the modern university is stressed as it is considered the one social entity that could make the greatest contribution in the shortest time.

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1. Introduction

Despite the confident claims of various elites, evidence has emerged over several decades that we are living in the final years of what might be called the 'late cornucopian period.' That is, a time when the assumptions of limitless growth, the view of the Earth as merely a collection of resources (and sinks for waste), belief in the ability of natural systems to absorb human impacts and, overall, a view of humanity as 'lords and masters of nature' are failing. One thing is certain – the consequences will be unprecedented and profound.

The term 'Anthropocene' was initially coined by Paul Crutzen as an *ad lib* aside during a conference presentation in 2000. Its roots are from the Greek – *anthro* meaning 'human' or 'man,' and *cene* meaning 'new' (geological era). Scientists and others now acknowledge that:

humans have wrought such vast and unprecedented changes to our world that we actually might be ushering in a new geological time interval, and altering the planet for millions of years. (They) . . . contend that recent human activity, including stunning population growth, sprawling megacities and increased use of fossil fuels, have changed the planet to such an extent that we are entering what they call the Anthropocene Epoch. . . (It) represents a new phase in the history of both humankind and of the Earth, when natural forces and human forces became intertwined, so that the fate of one determines the fate of the other [1].

What is remarkable, however, is that despite overwhelming evidence that humanity needs to change course, revise its modus operandi and steer away from the abyss, it continues on its merry way apparently oblivious to the very real danger it is in and uncaring of the costs to present and future generations. This is a civilisation in denial of its existential condition, a myopic and growth-addicted culture that constantly refuses to acknowledge the global emergency it has itself created [2].

While those in affluent nations continue to invest large sums of money to live at, or close to, sea level or pay inflated prices for luxury skyscraper apartments; while suburbia continues to spread nearly everywhere (regarded by some as the greatest

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misallocation of resources in history); while luxury cars remain popular (even as the price of oil and impacts of CO₂ emissions continue to ratchet ever upward); while the global advertising industry continues to push its long-outdated and ever expanding menu of 'must-have' lifestyle options through every possible channel (with the result that everyone, everywhere, is subjected to a constant barrage of instrumental messages that deny and degrade their common humanity), we should not be surprised that stress levels and social dysfunctions of many kinds are on the increase. Human identity and personhood have seldom sustained such deliberate, implacable and sustained erosion, at least not at the global scale. Yet at some level most thinking people recognise that we inhabit a fool's paradise, a world of illusions, for one central reason: the structural underpinnings of this way of life are eroding from under our feet. How might it we begin to respond to this unprecedented situation? In the short paper that follows I will explore a few possible responses, as follows:

- become more aware of current contradictions;
- embrace insights into the state of the global system;
- acknowledge, value and apply signals of change;
- cultivate scepticism about the assumed importance of science and technology;
- explore the potential of human, cultural and institutional innovation; and
- design and implement a range of high quality responses – especially in education.

2. 'Late cornucopian' contradictions

As the deprivation and exploitation of whole populations over a long historical period re-emerge in acts of terror and self-hatred, and as the greatest military machine in the world faces defeat and entropic exhaustion, some of the most open-minded and forward-thinking who are currently charged with administering the dominant social formations of government, business, education, churches, the judiciary, the media, are becoming aware in one way or another, that current ways of life are indeed under threat. Yet it is remarkable that many of the most useful and innovative ways forward appear to be literally unthinkable. As the future prospects for our species darkens under a growing series of systemic threats, the Australian government holds a history summit. As parts of the environment show unprecedented strain, and even collapse, under the strain of sustaining over six billion human beings, the conservative news media are in full denial mode spouting op ed columns about the 'fraud of global warming' [3]. As the time of peak oil duly arrives, a palm tree shaped island packed with luxury dwellings has taken shape on reclaimed land in Dubai. But for how long it remains 'reclaimed' no one can say. Concurrently China and India are well advanced in their attempts at their own industrial revolutions two centuries too late for them to be achieved without incalculable costs.

This is therefore not a time for wishful thinking and blind adherence to conventional routines and prescriptions. Rather, it is a time that calls for lucid thinking and genuinely new ways of navigating the near-future environment. Far too much of what is optimistically called 'new thinking' occurs within the circumscribed mind-spaces and stereotypical regimes of the currently dominant powers that be. Entrepreneurs and business people wax lyrical about the 'new opportunities' of the 'green economy', of complex financial instruments for hedging investments and of the marketing potential of new waves of technical development. But few of them are willing to question or reform the very system that provides them with wealth and power. Sadly this suggests that the system itself must fall before long-term structural changes will occur. Yet in that fall the ability of the planet to support the vast and expanding range of human demands will be further compromised, nor will the environment recover on any time scale meaningful to humans. Sceptics have only to contemplate examples like the now-vanished Aral Sea, the destruction of numerous ocean fisheries, the long-term decline of coral reefs, the scarcity of clean fresh water, the chronic decline of terrestrial environments and the reality of the 'sixth extinction' to recognise, at some level, that something is terribly wrong. That all this is taking place in a context of chronic and unresolved global conflict adds a further savage twist to the story. If, as some suggest, the Third World War has already started, due to the ever-growing competition for living space and finite resources (especially arable land, minerals, fresh water and oil) responding effectively becomes essential.

3. Embrace insights into the state of the global system

Fig. 1 shows about 40 authoritative works that each have provided essential insights into the nature of the global system and, equally, the stresses acting upon it over a 60-year period. To take a few examples, back in 1956 M. King Hubbert correctly forecast that oil production in the US would peak a decade or so later, around 1965–70. His work was then applied to assess the eventual depletion of global reserves, hence the term 'peak oil.' Rachel Carson warned the world about the unintended side effects of pesticides on many other species, especially oceanic birds. In the late 1960s Ed Mishan outlined some of the costs of economic growth while Paul Ehrlich explored the downside of population growth. Both were widely dismissed as cranks. Not long after this the Meadows' work on 'limits to growth' and Lovins' on 'soft energy paths' drew similarly divergent responses. In these and most other cases new work that drew attention to the costs and dangers of growth were welcomed by progressives and dismissed or ignored by most others. This pattern has persisted largely unchanged up to the present time.

Let us note in passing that this is, of course, a tiny sample of a vast literature that spreads across dozens of fields and would also be represented in the scientific literature by untold thousands of papers and research projects. Such a sample does,

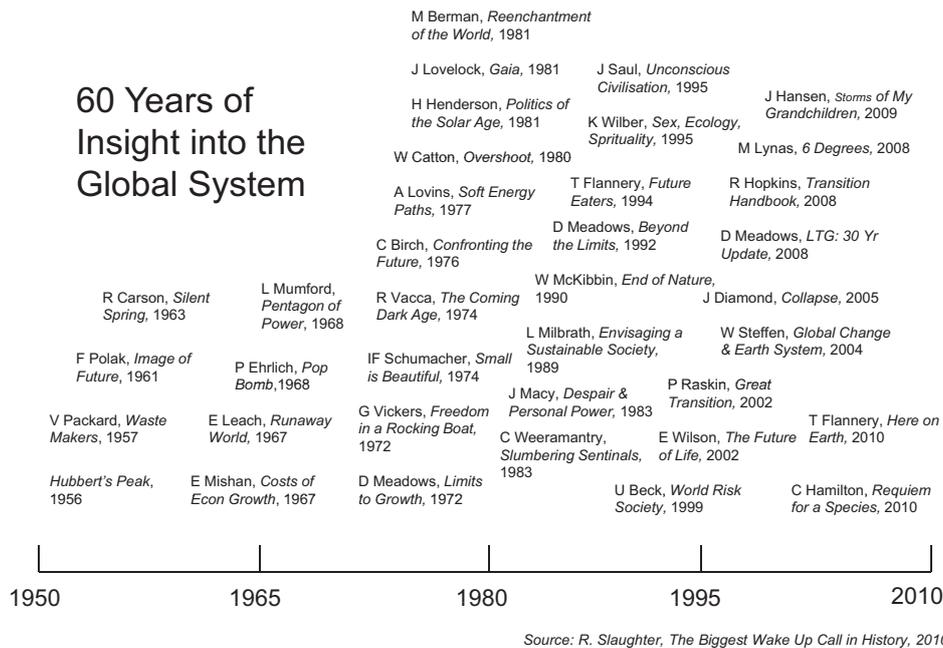


Fig. 1. 60 years of insight into the global system.

however, illustrate a couple of significant points. First, to critically and progressively scan this 'summarising literature' provides a viable way of tracking changes and alerting us to emerging issues. Second, with this in mind we cannot pretend that 'we've not been told.' If, by this time, we're still unclear about the impacts of humanity upon its world, then it is time to come clean, as it were, and acknowledge that we've simply not been paying attention. The key point is that from here on in we must learn to pay attention in quite new ways or become complicit in creating an 'overshoot and collapse' future [4]. We'll want to start recognising signals of change and understanding their significance.

4. Acknowledge, value and apply signals of change

Signals of change are constantly being generated in very many places but currently most of them fall on deaf ears and upon eyes that have, in some sense, chosen to remain closed. One way to account for this systemic blindness is to view it as a carry-over, a cultural habit or literal blind spot that reflects earlier times when humanity was a trivial part of a vast natural process that continued its ponderous age-old cycles regardless of what people did or did not do. That time is now over. Today humanity operates collectively with all the force – and in some respects greater – than some of these natural cycles. Some may find that hard to believe but the facts are in. This was demonstrated beyond doubt in 2009 when a research team under the guidance of John Rockstrom reported back on the question of global boundaries. The research team found that planetary boundaries had already been exceeded in three cases (climate change, species extinctions and the nitrogen cycle), that four more were close to being breached (ozone depletion, fresh water usage, ocean acidification and changes in land use), but that currently there was insufficient data to decide on the remaining two (atmospheric aerosol loading and chemical pollution) [5].

It will be no surprise to readers of futures that the profession of environmental scanning has developed over recent decades and offers any organisation that wishes to make use of it a powerful set of tools for detecting, evaluating and applying signals of change. Moreover the analytical abilities of human minds have been vastly and comprehensively augmented over recent years by quite stunning advances in information technology. Sadly, however, the human and cultural will to apply these new capacities to questions that really matter still appears lacking. It is significant that such capacities are indeed applied daily and diligently to tracking changes in the market place situated within the realm of the international human economy. On-line trading of commodities and currencies is, for example, now within the reach of anyone with a computer and countless people have taken up this option hoping to make money in this way. I will here set aside the question of whether or not this is merely taking part in the creation of an unreal 'bubble' of fantasy value. The more important point in the present context is this. Someone once said that 'the economy is a wholly owned subsidiary of the ecology.' That point has not, to the best of my knowledge, ever been contradicted. The question therefore becomes: why are more social entities not looking daily at the indices of global change and dysfunction? Are they logically not more important than the daily changes of market value? Clearly the reality principles of affluent societies are in urgent need of overhaul. In the context of a threatened world environmental scanning and the careful interpretation of signals of change becomes an urgent imperative.

5. Cultivate scepticism about the assumed importance of science and technology

Within Western culture there's a clear valuation that associates science and technology with the future. Indeed, the vast majority of visual depictions of futures are actually depictions of science and technology futures. The prevailing view is that

you can build the future, get from here to there, mainly as a result of advances in nanotech, genomics, IT and so on. But that's not really the case. What's been widely and consistently overlooked is that all such developments are grounded in social processes that themselves rest on intangibles, and especially on values. So I want to turn the usual view around and to suggest that science and technology may be less capable of shaping the future than prior human choices about what values are needed to create and guide them in the first place. This is made clearer, perhaps, through an example.

For some years the Australian Labour Party has adopted what's known as the 'three mines policy.' That is, it permits the extraction and export of uranium ore from three locations. Yet, on the other hand, it has thus far stood firm against calls for Australia to source some part of its future energy needs from nuclear power stations. Currently the country obtains most of its electricity from the burning of various grades of coal, some of which are extremely dirty indeed so far as CO₂ pollution is concerned. So the pressure is on and calls for a change of policy that would allow the introduction of nuclear power are becoming more frequent, especially in the mainstream conservative press. In most cases that I've seen the question about whether or not to go ahead seems to rest upon assumptions about the likely increased future demand for electricity set against the expected decline of available energy sources. In other words, it's primarily depicted as a technical issue with a variety of technical solutions. The notion that *reductions in demand* might alter this balance quite dramatically seldom surfaces. More rare still are questions about the wisdom (or otherwise) of continually and artificially stoking demand through a diverse and very well funded range of arrangements that go under the headings of 'advertising and merchandising.'

The vast majority of public media around the world remain saturated by the values and associated worldviews that belong to the now-redundant era of cornucopian plenty. Collectively they assert a diverse yet powerful and constant set of pressures on people to think of themselves, and therefore to act as, consumers. Again, in Australia, large four wheel drives have continued to sell very well despite the fact that peak oil is upon us. Thus, under such conditions advances in science and technology appear to serve redundant values and the purposes that went with them. Perhaps the most ironic and devastating expression of this is the use of mobile phones by terrorists to trigger their bombs. We should bear in mind, however, that consumerism is doing something not dissimilar, but more slowly, by sanctioning ecocide through its ignorance of natural limits. The fact that the early victims are conveniently distant from us only serves to make it easier to ignore their plight [6].

6. Explore the potential of human, cultural and institutional innovation

In all the vast literature about the challenges facing humanity the dominant focus up to the present has tended to be on externals – science, technology, infrastructure and so on. Unfortunately this largely external focus has tended to blind us to the shaping power of interior factors that arguably do much to drive the rest. To check this I looked at a sample of 14 works dealing with climate change and, indeed, only one of them paid equal attention to human and cultural factors, i.e. the interior development of human beings and cultures [7]. What this means is that any attempt to deal with the global emergency that overlooks interior realities is not only excluding half of reality. It is also missing the most promising and transformative options available to us. I will briefly explain what I mean by this.

If, for a moment, we shift our attention away from the pursuit of external solutions to global issues and instead re-focus on interior ones, a whole new world of options appears. This is so because different human and cultural characteristics open out some options and extinguish others. Every culture and every individual human being is affected by pre-given choices, unconscious commitments, perceptual filters and, finally, the range of options available at different levels of individual and social development. It follows that these interior states and stages actually determine not only what's possible in any situation but also what's 'thinkable,' able to be comprehended. To be more specific, a pre-modern society, will not have the features or the options available to a modern, still less to a post-modern one. Equally, in relation to individual human beings, a person who is at an egocentric stage of development will not have the resources available to one who operates at an ethnocentric level, still less that of those who do so in a worldcentric manner. While there's some debate around the margins about some of the details the overall conclusion is irrefutable. The most profound and potentially influentially shaping responses to the global predicament originate here, in the social and human interiors. So it is to these crucial domains that we should direct our attention.

Part two of *The biggest wake up call in history* explores this hypothesis in some detail. There I try to show how what some have called 'accelerated psychic development' can be seen as providing *the* single most promising key to the solution of global problems. This, I hasten to add, is not an either/or issue. Individuals and societies that aim for, and to some extent achieve, higher levels of interior development will also, it seems clear, develop technologies and infrastructures that reflect these developments. In this context, consumerism is discarded along with many of the conceits of earlier societies. The so-called 'conquest of nature' is seen for what it is – a vast mistake. And the great god of growth itself may finally be subjugated to Earth-, and life-centred imperatives. Some options, such as nuclear energy, genetic engineering and the over-extension of IT are likely to be abandoned for all time thereafter.

7. Design and implement high quality responses

What humanity needs now is a far cry from the exploitive, ego-based, dismissive and redundant responses that currently seem dominant. Rather, it needs to conceive of and then implement a truly staggering range of high quality responses. As I've suggested above these will turn on the willingness of everyone to look freshly upon their own powers and potentials and also

to activate a range of social innovations across the board. This is a vast subject that cannot be fully encompassed here so I will comment briefly on three social domains that could each contribute in their own ways: design futuring; the role of higher education and the further evolution and take-up of social foresight.

7.1. Design futuring

In Tony Fry's book on design futuring global dysfunctions are viewed as symptoms of an underlying condition – the unsustainability of the current civilisational project [8]. Fry's purpose, therefore, is to identify, question and critique these deeper issues that, in his view, blind us to the nature of the world we've collectively created. In this view our deep-seated anthropomorphism has allowed us to view the world instrumentally, thus rendering it into mere resources to be expropriated for human use. In the process, we've progressively undermined our own existence and placed the future at ever-greater risk. His resonant term for this is 'defuturing.' The work of politics, business, education and the design professions is impaired by their lack of understanding of how the normal operations of civilised life oversee a general deterioration in the conditions of life.

To deal with this situation the author attempts to reconceive and situate design as a 'redirective practice.' That is, a meta-discipline that enables the 'practical transformation of knowledge in action.' In turn this involves ethical commitments (such as accepting responsibility for the unfinished character of all that is designed) and political ones. Very fortunately, the author places these challenges in the context of real world projects in which he has participated and these helpfully flesh out what he wants some of these notions to convey. He enumerates a number of redirective practices such as 'elimination design' (basically getting rid of the whole plethora of damaging and ill-designed materials and products – such as cheap umbrellas that break after a couple of uses) and what he calls 'the erasure of need' (exposing fabricated wants over promoted by marketing), functional substitution, product multipurposing, de-, and re-materialisation [9].

Other strategies, or 'methods of change,' include platforming, the redirective design brief, new design teams, futuring and scenario building, and learning from the past. Platforming is 'a strategy that maintains existing economic activity and culture, while building a new direction and products or services that are based on futuring.' The redirective design brief is an attempt to transform 'conventionally conceived design commission . . . into a sustainable project by structuring a particular kind of engagement with a client.' New design teams will be broader, more varied and will have access to deeper knowledge and problem-solving skills than in the past. Scenario building becomes a key tool used for 'designing from the future to the present'. Overall, Fry wants to see the design professions re-configured in depth to tackle the range of systemic faults he has identified. In this future designers need to become thorough going cultural innovators who are willing and able to be 'independent agents outside conventional models of service provision' [10].

7.2. Role of higher education

Some years ago I wrote a paper on 'universities as institutions of foresight' [11]. I'd like to say that some of the notions within the paper were eagerly pounced upon, taken up, improved and implemented. But that is not the case. Instead, as the world trembles on the edge of chaos, most universities remain caught up in business-as-usual thinking, their priorities very much bound up with inward-looking purposes and goals such as funding, standards and position in the international pecking order. Paradoxically, many have within them some of the most talented and capable people in the world, many of whom work at the leading edge of research and innovation in a vast number of fields. But if you look at the number of places where futures/foresight work finds expression in actual departments or institutes the numbers have not increased greatly in three decades, and may even have declined. This is not what one would expect if those in charge of the universities had any real grasp of what is currently at stake. The world humanity is facing demands an entirely different and vastly more creative set of responses.

As far as I'm aware, not one university anywhere in the world has taken up the challenge set out so clearly by Don Aitkin, former Vice Chancellor of the University of Canberra, more than a decade ago when he wrote that:

it seems to me that humanity may have only two generations left in which to sort out how to modify the impact of the human species on the planet. If it does not learn how to do that, then the world is likely to experience a catastrophe even more severe than that of the Roman Empire. Compared with 1500 years ago, we do know in some detail what is happening and we know at least some of what needs to be done. Moreover, we understand that where we do not know something, we can set about finding it out.

The principle institution in humanity's race to save itself, if we set aside enlightened governments, is the modern university. . . [12]

Despite the deteriorating global outlook universities largely remain caught up in the earlier instrumental growth paradigm that brought us to this extremity in the first place. If this is to change then university governance, pedagogy, the fundamental *raison d'être* of these institutions needs to change and to change fast. Indeed, it will not be long before it will take heroic efforts of self-deception to avoid the encroaching manifestations of global emergency. Universities need to be taking the lead in gearing up for the transitions ahead. They therefore need to invest much more seriously and

comprehensively than hitherto in preparing the individuals and creating the enabling structures to support them. They need to take up their potentially catalytic role in creating and sustaining social foresight.

7.3. Creating and sustaining social foresight

Personal and informal forward thinking comes so naturally to human beings that we seldom give it a thought. Upon awakening one of the first things to arise is a mental picture of the expected day. At the beginning of a week we have a similar picture of the days to come, a less well-defined one of the month ahead, a view of the year and so on. Were this not so then we'd feel confused and have little reason to get up. Children would not be sent to school. No one would study anything. Nothing would be planned, built or achieved. Travel would cease and, indeed, society would grind to a halt. Simple thought experiments to 'remove' all traces of the future from our minds show that human motivations and actions all rely upon an open future in which we imagine and play out images of expectation and purpose. Each and every moment of our lives gains meaning both from past experience and also from the backdrop of the near term future that constantly and effortlessly arises within our minds.

With all this in mind it's no great stretch to consider how these in-built capacities can be valued and enhanced. Simple futures concepts and tools can be introduced at an early age. As people mature and grow these resources help to create the wherewithal, the symbolic space, within human minds to actively appreciate the 'not-here' and the 'not-yet.' Beyond this many more organisational niches are required in which extended enquiry into possible futures can take place, be valued and applied. Over time, and let us not forget, under the growing pressures of global emergency, futures/foresight work can emerge from the margins, as it were, and take on new and distinctively social forms [13].

As this occurs we'll finally begin putting serious efforts into creating high-quality forward views in every possible area and field. As noted above this involves scanning the world for signals of change, interpreting these with the best minds available and using the results to create ever more high-quality, detailed and useful maps of near-future environments. The best way to do this is to consciously nurture individual, organisational and social foresight at every level. To the extent that this is achieved, the lead-time to understand what is at stake and to put in place the means to deal with new and challenging issues can be created. On the other hand, waiting until matters become so urgent that crisis management is the only choice left, is a strategy that appeals only to those doggedly unaware and focused on the short term. It should be apparent that this is suicidal. The costs involved in developing and sustaining a full range of foresight capacities should not be overlooked but they are greatly to be preferred over the alternatives, i.e. blundering into otherwise 'unknown' futures with the severe social learning experiences that lie in wait for unsuspecting and over-dependent populations.

8. Uses of the grief cycle

The view ahead is indeed so challenging that we need to bring the very best of our abilities and resources to bear upon it. There are multiple perspectives to understand and evaluate. There are many blind spots and areas where knowledge is either contested or fades out completely. There are competing social interests, surprisingly many of whom not only could not care less about their children's future or that of later generations, but are also actively exploiting or 'mining' the present and future for immediate short-term gain [14]. Yet it's also vital to realise that, to some extent, we're all complicit in this process. Half of the world's oil has been squandered in a few short generations and no one in the rich West can be completely free of the taint of guilt. The truth is that we had no more right to fritter away this unique resource than we did to collectively initiate the sixth extinction that continues to rob the world of other species. So the questions that arise are never simply about the 'good' vs. the 'bad.' On top of everything else we must include ourselves, the spectrum of human nature and capability, in any diagnosis, any set of recommendations about what, and who, should change, for we are not separate from any of what is going on in the world [15]. This critical area has been widely overlooked both in the attempts to understand the global predicament and the literature that has arisen around it. To underscore this point I'll finish this short paper with reference to an unusual and influential work. Its overt focus is about dealing with the end of life but its implications are wider.

The grief cycle was developed by Elizabeth Kubler-Ross during the 1960s. She spent a great deal of time with dying people, both comforting and studying them. Her results were published in a book called *On death and dying* [16]. It was later noticed that the cycle she described applied not only to the terminally ill but also to others who were experiencing misfortunes of various kinds. The underlying idea is that change itself is not necessarily good or bad. What is crucial is how we perceived and respond to it. Similarly, as people open up and allow themselves to become aware of the nature and extent of the global predicament, many tend to metaphorically throw up their hands, admit defeat and move on to other, less challenging, matters. The issues are profound, the challenges exceptional and time is quite possibly our most scarce resource. Therein lies a rationale to live even harder, to work, travel, consume, and hope against hope that 'the experts' are wrong.

Such responses are not purely personal. As noted above, they are powerfully encouraged and legitimated by commercially driven mass media. But the truth is that the times call for more courageous and creative responses. If the latter are to be more adequately developed and more effectively used we need to understand how people respond to bad news and how they can be helped to move beyond it. The Kubler-Ross grief cycle opens up one avenue of understanding and response but it's by no means the only option. For example, the 'despair and personal empowerment' work developed by Joanna Macy and others [17].

The stages of the Kubler-Ross grief cycle are as follows:

1. *Shock*: initial paralysis at hearing the bad news;
2. *Denial*: trying to avoid the inevitable;
3. *Anger*: the outpouring of bottled-up emotion;
4. *Bargaining*: seeking vainly for a way out;
5. *Depression*: final realisation of the inevitable;
6. *Testing*: seeking realistic solutions;
7. *Acceptance*: finding a way forward [18].

Most people are genuinely *shocked* when they realise how serious the human predicament really is and how it threatens our own futures, that of our children and of all future generations. So it's not surprising that some combination of *denial/avoidance/repression*, three familiar psychological mechanisms, are commonly called into play. Yet what each has in common is that they are ineffectual. Once we know what we know, we cannot 'un-know' it. It remains in the background, whether acknowledged or not, and arguably adds a real burden, a cause of stress and concern, to our background awareness. For some this erupts in *anger* and furious denunciations of politicians, oil magnates, the asbestos industry or whoever is currently being pilloried in the daily news. In a tiny minority of cases it may lead to what has been termed 'eco-terrorism', or acts of destructive anger exerted upon those identified as the current 'enemy', such as forest workers, corporate agents or highly paid bankers.

Bargaining may occur when one attempts to trade off some minor habit or indulgence for peace of mind. But when that fails (because it does not affect the primary issue) then *depression* may set in. It is notable how widespread depression has become in the rich, technically advanced, nations. Some part of this is undoubtedly due to the costs of an over-individualised and materialistic way of life set in a de-spiritualised social milieu. But another part may well reflect the un-, or sub-conscious recognition that the human species is now caught in a trap of its own making that will be difficult or impossible to escape. This, at first sight, is likely to be regarded as a depressing outlook (although it is by no means the end of the story).

Testing begins when we begin to open up to wider, deeper and systemic solutions involving our inner selves – our values, perceptions and the vast range of taken-for-granted 'pre-givens' that permeate social contexts. Becoming keenly aware of these inner/outer dynamics reveals countless ways of dealing with our predicament. For example, retiring aspects of the Western industrial worldview (e.g. an unconditional commitment to economic growth) and bringing forward real alternatives (e.g. 'steady state' re-localised economies). All would-be social innovations require such testing. This is also the realm of critical and Integral futures work. *Acceptance* in this context may mean a number of things. For example, it might mean broader acceptance of the need to reach for new values. It may mean that the cornucopian era is over and that it's time for the species to move on to new purposes and stages of civilisation. It might mean that a Buddhist view of reality becomes more acceptable to the mainstream. It may not be for everyone. But the view that the material world is only one aspect of reality certainly has wider salience and is likely to be included in any viable worldview beyond the present.

9. Conclusion

The bottom line is this. We've already entered a new period in the history of the Earth and that of all its inhabitants. Like it or not *homo sapiens* has its collective hands on the levers of change, the very processes of life and death that govern the operation of the planet's weather, the viability of land and water, the prospects from here on in for all life, including our own. Unfortunately it is as yet insufficiently integrated within itself and between its far-flung members to be entirely ready for the tasks ahead. Nevertheless, there are really no other options but to begin to take responsibility for decisions made by previous generations as well as those being made by our own.

If we cast a discriminating eye over the social landscape there are currently few social entities sufficiently well-equipped to deal responsibly and comprehensively with the impending global emergency. It would be encouraging to think that governments would take the lead. But their chronic short term preoccupation with the 'next election' and their long standing unwillingness to engage with high quality futures work of any kind clearly shows that they will not support the kind of post-conventional, worldcentric leadership that's now required. Churches have lost salience in most Western nations. The NGO community, while energetic and enterprising in some respects, in my view remains too fragmented and divided to constitute an effective force for change. There is, however, one candidate for this role and I've referred to it already – the universities. We recall that they have access to earlier traditions of social responsibility and knowledge uses beyond and above the market, that they are semi-autonomous, and that they also employ a significant number of globally-oriented and post-conventional thinkers.

I've argued that since it is within such shifts in worldview and capability that our best hopes lie, it seems obvious that universities everywhere need to set aside many of their current preoccupations and focus singly, and together, on the many-sided tasks of reconstituting themselves for the work outlined here. They could start by relinquishing some of the 20th century preoccupations discussed here and re-focusing not only on understanding what the global system is telling us but also in finding new ways to respond. This is, of course, a multi-disciplinary enterprise. Specifically, however, one of the most effective changes they could make would be to re-value the professions of futures studies, environmental scanning and applied foresight [19]. The earlier marginalisation of these professions is a scandal that can be corrected by setting in train

the innovations, facilities and personnel to build them up rapidly and effectively. This is not, however, merely about the creation of new departments and courses. More fundamentally it is about re-orienting these most powerful gate-keepers of education as a whole away from the past and toward the threatened and emerging future.

There's no doubt that this is a confronting prospect and one that challenges us as never before. No one can predict the outcome because everything is at stake. It really is up to us, here, now. Welcome to the anthropocene.

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