

Oil and Debt – the Collision Between Ecology and Economy

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The single over-riding issue that will shape the history and politics of the twenty-first century is the conflict between economic growth and development, on the one hand, and ecological limits, on the other. This conflict already predominates to such an extent that the modern dream of politics has been largely suspended, leaving us as pawns in the play of much greater forces. The drama that we now see unfolding, and which will continue for many decades to come, is, quite simply, the battle for resources.

The existence of future ecological ‘challenges’ and ‘serious threats’ to the environment is widely accepted; yet this discourse is extraordinarily weak as a description of a condition when significant sections of the global population will have insufficient access to fertile land, fresh water, clean air, and energy, while also being repeatedly afflicted by extreme events arising from environmental instability, such as diseases, plagues, pests, droughts, famines, fires, storms and floods. Since it is difficult to predict the extent of such conditions, it is easy to imagine them as a continuation of the kinds of ‘natural disasters’ with which we are familiar. This does little to address the intensity, severity and extent of what is to come. For a way of life that depends on an increasing consumption of material resources – pitching consumer desires and market imperatives against responsible restraint – will necessarily continue to deplete vital resources, creating imbalance and instability. It will therefore continue to increase the intensity, severity and extent of these so-called ‘natural disasters’ until that way of life is no more. Economic globalisation will soon be over; the only uncertainties are the rates at which ‘unnatural disasters’ will intensify, and whether the human race will adapt or die. Given the population explosion in domestic farm animals,

which have multiplied fivefold since 1945 while 13% of agricultural land has degraded; given that the rate of production of carbon dioxide has increased fourfold, while weather-related natural disasters double in quantity every two decades; given that two-thirds of the world's population are likely to be effected by water scarcity by 2025; and given that estimates of a four degree temperature rise this century are spoken about, with no clear evidence that those temperatures will stabilise in future centuries, it seems probable that the environmental crisis is about to arrive in force.

Our inability to take responsible action in the face of this threat is epitomised by our attitudes towards the resource of oil and its waste product, carbon dioxide. Some environmentalists have warned that if more than a quarter of the world's remaining oil reserves are consumed, then the concentration of carbon dioxide in the atmosphere will lead to runaway global warming. One may suspect that this threshold is somewhat arbitrary, and in reality unknown; nevertheless, the principle is not (see the Intergovernmental Panel on Climate Change report, *Climate Change* 2001; and the National Association of Scientists' report, 'Abrupt Climate Change: Inevitable Surprises', 2002¹). Moreover, given that there are only 40 years of known crude oil reserves remaining at the current rate of production, this putative threshold would be crossed within a decade. Current trends, however, suggest that the consumption of the majority of the world's remaining oil reserves, some 800 thousand million barrels, is now all but inevitable. Even the replacement of petroleum and diesel engines by hydrogen fuel cells would still require a source of primary energy to produce the hydrogen by electrolysis (see Rifkin, 2002).

Why are we so unable to change? Is it simply a failure of collective will? Here, I believe, most contemporary consciousness is out of step with the political constitution of our current situation: the critical source of power is not to be located in the White House, on board aircraft carriers, in the United Nations, in international financial organisations, in corporate boardrooms, in the corporate media, in the universities, in the will of the people, or even in their daily practices. Any resistance exerted in these directions will be too weak to contest countervailing powers. Quite simply, our humanistic models of the political world are blind to the fact that this occupies a rather narrow band between the natural world, on the one hand, and what I will call the 'spiritual' world (consonant with Derrida's 'spectral' analysis of Marx (see Derrida, 1994), but modified (see Goodchild, 2000)), on the other – epitomised by oil and debt. For the human ways of exercising power are in the last instance determined by the powers which bound them, from without and within.

¹ see: <http://www.nap.edu/books/0309074347/html/>

The essential technological innovation that made the modern world possible was the harnessing of preserved organic energy. Myriads of life forms, which had stored up the sun's energy over millions of years, return to life once more when their undead energy is liberated for a moment in the combustion of coal, oil or natural gas. What are essential here are both the quantities of energy involved, resulting from the residue of millions upon millions of lives, and the capacity for this energy to be generated, transported and stored at will. In the combustion of fossil fuels, the complexity of life is converted into a pure, undifferentiated flow of energy. As in all symbiotic partnerships, the distribution of 'power' between the human agents who direct the flows of energy and this undead fossil force is more ambivalent than one might think. For human life has become increasingly dependent on this external energy supply, and vulnerable to its only modes of exercising power: to exist, or not; to be available, or not. Now, insofar as we can predict the existence and availability of fossil fuels, they would appear to be a part of a passive natural world to be acted upon by intelligent, technological humanity. But if the extent of technological activity is effectively determined by the availability of fossil fuels, then such 'passivity' is extraordinarily powerful: it will determine human conduct to maximise its opportunities for access to fossil fuels. While such maximisation appears to be a choice, it is one made on the basis of the desire to preserve human activity and its way of life as it is now.

While the depletion of fertile land and fresh water has affected many countries, it will be the depletion of oil that first announces the conflict between economy and ecology for the global economy as a whole. Although there are apparently 40 years of oil remaining worldwide, including 86 years in Saudi Arabia and 63 years in Venezuela², oil production will decline much more rapidly elsewhere. Within 20 years, reserves in Europe, North America, India, China and the former Soviet Union will one by one become exhausted. The raw data suggest that in 15 years' time, 40% of current oil production will have ceased. The discovery of new reserves has been at a much slower rate than the rate of production over the past 30 years³. According to a report by the Oil Depletion Analysis Centre submitted to the UK Cabinet Office Energy Review in September 2001, global output of conventional oil will decline after about five to ten years (depending in part on whether oil production in Iraq is increased). Non-conventional oils and gases may do a little to compensate, but their quantities will never be sufficient. In short, the report predicts that by 2020, supply of hydrocarbon liquids as a whole will decrease by about 10%, while demand increases by a notional 40%. Natural gas production is also due to peak around that time,

² see <http://www.bp.com/centres/energy2002>

³ see <http://www.oilcrisis.com>

with the current reserves lasting 62 years at the present rate of production. At present, fossil fuels constitute nearly 90% of the world's primary energy supply, with oil around 38%, and natural gas around 24%.

An optimistic portrait of the significance of these figures can be painted: increased prices will make other sources of energy, including the extraction of non-conventional oil, economically viable; the resources of other kinds of oils will mean that vital oil-derived products, including chemicals and medicines, will remain available; rising oil prices due to scarcity will also mean that there are much greater profits to be made for oil companies, in spite of a slightly reduced rate of production. Moreover, the laws of supply and demand are such that even though some may no longer buy oil because of price rises, the price will remain low enough for all the oil to be sold and consumed. There is no question of the US military running out of oil in the immediate future. In the longer term, global warming implies that we will never be short of primary energy, so long as we can find ways to extract, store and transport it. Thus it is possible to imagine a transition to a 'hydrogen economy', where hydrogen is used for the storage, transport and reproduction of energy, where individuals can act as local producers and suppliers, and where the energy supply is thoroughly democratised (see Rifkin, 2002). If there are no technical limits on the production of primary energy from renewable energy sources such as solar, wind, and hydroelectric power (Dunn 2001), then this is a future which probably will be achieved at some stage.

There is much more to the scenario than this, however. It is important to emphasise that hydrogen is not a source of primary energy, except when extracted from natural gas. World consumption of energy increased by 12% over the decade from 1991-2001; it is an inseparable part of industrial production, agricultural production, and trade. While it is possible to speculate that the world's primary energy supply could be provided by covering 0.5% of its surface in solar panels, actual predictions of the growth in solar power suggest that it could provide only 21% of the world's electricity in 2040 (see Cameron et al. 2001). Renewables may not even meet the growth in energy demand, let alone replace current supplies. Thus we envisage a gap of several decades of deficiency in primary energy. A squeeze on oil production means that prices will rise as high as the global economy can support; it will also mean that the least profitable economic activities that depend on oil will no longer be able to continue. Once most countries of the world exhaust their oil production capacity, they will become dependent on the only remaining supplies: those in the Middle East.

It is important to appreciate that the geopolitical significance of oil is not simply that it may yield large profits in the future as prices rise. It is usually too expensive to fight wars for the sake of profits. The vital strategic consideration is economic security, for the size of the global economy is

limited by the supply of oil. One should not assume that just because George W. Bush, and other leading figures in the current US presidential administration are former executives or directors of oil companies, their foreign policy is simply determined by a quest for oil for the sake of profits. The underlying demands of energy security outweigh a quest for profits, just as they outweigh fanciful concerns about threats from weapons of mass destruction. Indeed, the explicit ideas underpinning current US foreign policy can be read in the report of a right-wing think tank, the Project for a New American Century, entitled 'Rebuilding America's Defenses', published in 2000⁴: several of the report's authors are senior figures in the Bush administration, and many of its recommendations have been instituted as policy, including provoking war in Iraq and North Korea. Indeed, the report sees beyond the limited aim of regime change to attacking Iraq for the sake of establishing a strong military presence in an area vital to US interests. Such interests can only mean the preservation of access to oil against threats from political opponents who could shatter the US economy. The report explicitly aims at establishing a *Pax Americana* to replace existing international institutions and security arrangements, and to prevent the emergence of competing powers. Yet the significance of oil depletion goes beyond providing a motive for current US foreign policy, significant enough though that is. If we leave aside the shallow and grandiose aspirations to eternal empire that explicitly motivate the US executive, we may notice that they are faced with a stark choice: either to control access to the world's shrinking energy supply, or risk the US coming to resemble a 'poor developing country'. The 'Strategic Energy Policy Challenges for the 21st Century' report for Dick Cheney in April 2001⁵ points out that 'the United States remains a prisoner of its energy dilemma', and that one of the 'consequences' of this is a 'need for military intervention'. It focuses on the vulnerability of the US to political control over oil supplies, with Iraq named as the key swing producer. It warns that:

in a world of energy capacity constraints, complacency could shackle the American economy for years to come. If it does not respond strategically to the current energy situation, the US risks perpetuating the unacceptable leverage of adversaries and leaving the country's economy vulnerable to disruptions and volatile energy prices (p. 15).

Thus Iraq does indeed possess a weapon of mass destruction. For:

As the 21st century opens, the energy sector is in a critical condition. A crisis could erupt at any time from any number of factors and would inevitably affect every country in today's globalized world. While the origins of a crisis are hard to

⁴ see: <http://www.newamericancentury.org>

⁵ see: <http://www.rice.edu/projects/baker>

pinpoint, it is clear that energy disruptions could have a potentially enormous impact on the U.S. and the world economy, and would affect U.S. national security and foreign policy in dramatic ways (p. 8).

More specifically:

Iraq remains a destabilizing influence to U.S. allies in the Middle East, as well as to regional and global order, and to the flow of oil to international markets from the Middle East. Saddam Hussein has also demonstrated a willingness to threaten to use the oil weapon and to use his own export program to manipulate oil markets. This would display his personal power, enhance his image as a “Pan Arab” leader supporting the Palestinians against Israel, and pressure others for a lifting of economic sanctions against his regime. The United States should conduct an immediate policy review toward Iraq, including military, energy, economic, and political/diplomatic assessments (p. 42).

We may note that not all governments have the opportunity to take such an active response to the risks of ‘oil price spikes’ and supply shortages; yet if one is taken on their behalf, then there is a considerable incentive to support it. There is, however, a further dimension to our current global predicament, which relates to another condition for the modern world: what I have termed our ‘spiritual’ world.

In 1694, a new gospel was preached by an apparently trustworthy source. It was a gospel of such influence and ramifications that I still carry one of its tracts wherever I go. It’s very short. It reads: ‘I promise to pay the bearer on demand the sum of twenty pounds.’ What a promise! I’m a believer. I will spend my life working for a salary and pension so that I can gather such promises. For with such promises I can buy anything I need, anything I want. I am promised freedom from the control of nature and material need; I am promised freedom from dependency on others and social obligation; I am promised the opportunity to spend my money on what I value the most. Of course, we all know that the Bank of England does not possess enough money to deliver its promises; and we all know that the rest of the money in circulation in the UK economy, some 32 times the amount available in bank notes, is composed of promises that cannot be delivered; but we only have to act as if they will be delivered, and, by some miracle, they are. These promises are delivered by others because we are all believers. We are all obliged to accept money and wish to accept money, for we all have to behave like believers to survive and prosper, whatever our private opinions.

The significance of the founding of the Bank of England in 1694 is that it allowed the money supply to be increased through the creation of a permanent, ever-expanding debt (see Hutchinson 1998: 107-10; Rowbotham 1998: 189-93; Goodchild 2002: 31: in the UK, private sector debt has increased by two to five times its total for each of the past four decades).

Prior to reliable paper money, there were natural limits to the acquisition of wealth through production and trade; wealth was earned in competition through plunder, piracy, conquest, slavery and exploitation, but was immediately passed on to others through trade and consumption. Once the intrinsic limits to the money supply were removed, however, a different mode of social organisation could emerge without limitation: production for the sake of profit. The great transformation was as follows: where, formerly, trades and profits were a limited segment of social life which was otherwise shaped by communal obligations and religious observances, the profit motive founded a new ordering of society, subordinating communal obligations and religious observances to economic ends (see Polanyi 1944; Hutchinson, Mellor & Olsen 2002).

In order to appreciate the power of this social revolution, the most significant in recorded history, it is necessary to explore the logic of profit and money. In the first place, money appears to have no power of its own. Money is an inert commodity, neutral in relation to exchange (according to mainstream economic theory), possessed and thus apparently mastered by us. It is also apparently politically neutral. The organisation of society for the sake of profit would seem to hold no power over other modes of social organisation, unless we exercise power on its behalf.

In the second place, however, we have no choice but to exercise power on its behalf. For, just as wealth gives access to military superiority in the form of weapons of war, wealth is the source of all power through its non-exercise of power in trade. The unique property of money is that it is both a commodity that can be possessed and a measure of value. My values and wishes will only be as significant as the amount of money that I have to pay for them. In order to realise my own values and wishes, insofar as this involves dependency upon others, I must value the acquisition of wealth as a means to my ends (see Goodchild 2002: 127-9). The acquisition of wealth is necessary for what I desire. Similarly, whether a government pursues welfare, health, education, development, prosperity or sustainability, the acquisition of wealth now comes first. Thus, in contemporary globalisation, priority is given above all to the creation of profits. This is the only way to realise the promises of wealth. Those who are committed to the generation of profits must continually increase the opportunities for profit through the exercise of human modes of power – such as provision, production, reproduction, possession, association, representation, legislation, jurisdiction, normalisation, violence, promise, threat, selection, persuasion, funding, reason, knowledge, morality, piety, and attracting or giving attention. And this very exercise of power is the organisation of society for the sake of profit. In short, the semblance of democracy is subverted by a condition of financial totalitarianism, whereby profitability is the condition of possibility for most kinds of social activity. Those with wealth, who are most attuned to

the need to increase wealth, are those who determine the flows of finance, and what activity will be possible. The process, however, is structural: it is not that the US Treasury exercises sovereignty over indebted nations via the IMF; it is the structural demand for maintaining conditions of profitability that imposes its impersonal will. Of course, one need not follow this structural demand. But those organisations that do follow this structural demand will grow and prosper, and increase their influence over others that do not. Thus there is no question of adopting a moral or heroic response of resistance to financial totalitarianism. Opinions and stances already matter little; they pass away in due course. All that matters is growth and survival.

In the third place, profit itself is external to any particular ordering of society: it is simply an abstract quantity, a differential rate, with no intrinsic meaning. It is an unlimited 'good': accountable to no one and limited by no one. For money is simply a token: it measures a reputation of value, not intrinsic value. When profit, the increase in reputation, takes priority, intrinsic values are sacrificed to an abstract symbol. Moreover, whereas any finite stock of wealth depends on past performance, the current value of any asset depends on expectations about its future performance and expected yield. Financial value depends on an imagined future. This imagined future transcends current reality, and, furthermore, the future never comes (Goodchild 2002: 142-5). For, even if there is a stock market crash, the value of any asset still depends on projections about its future. In this respect, financial value is essentially a degree of hope, expectation, or credibility. Being transcendent to material and social reality, yet the pivot around which material and social reality is continually reconstructed, the value of money is essentially religious. To believe in the value of wealth is to believe in a promise that can never be realised; it is a religious faith (Goodchild 2002: 36-8). It is now possible to clarify what I have termed the 'spiritual' dimension of our current political constitution. Power is mediated via a faith in a transcendent future; moreover, such a faith is not a personal decision. It is a condition for survival and prosperity. One does not need to believe anything to hold such a 'faith'; it is merely sufficient to act in accordance with it.

Thus the spiritual power of money, if once created by us, is something over which we have no power any longer. Any resistance to its claims confines one to a form of life which will eventually be superseded by the growth and attractions of global capitalism. If there is a single history that has been repeated throughout the world in the twentieth century, it is this.

In the fourth place, wealth gives access to power in market transactions between nominal equals, a point largely ignored by mainstream economic theory which assumes that prices are fixed by supply and demand. The fundamental power differential or class difference lies between those who trade to meet household subsistence needs and those who trade to make a profit (Goodchild 2002: 135-7). While those who seek subsistence must find

a trade locally, those who seek to make a profit are not compelled to trade at all, or can choose to trade elsewhere. This makes for an extreme imbalance in negotiating power. Alongside the other benefits of wealth such as mobility, advantages of scale, access to resources, information, technology, political influence, and marketing power, and the ability to undercut competitors and price them out of the market, this power differential makes 'free trade' extraordinarily unequal trade. As a result, the wealthy grow richer. The creation of wealth is the creation of a spiral of inequality, leading to exponential increases in power and inequality. Since production is organised for the sake of profit, and profit is obtained by selling to those with wealth, there is no need to organise production for the sake of those with no wealth who are excluded from the global economy, or to meet the needs of subsistence and sustainability. The increasing shift of power from householders to speculators is the theoretical reason why a global market economy will over time necessarily destroy a large proportion of the global population (Goodchild 2002: 138).

In the fifth place, an increase in the money supply does not in itself constitute an increase in wealth; it may simply produce an increase in prices, as in a boom in the property market, where the quantity of goods in circulation is relatively slow to expand. To realise profits, an increasing volume of goods must circulate. Creation of money must be paralleled by an ever increasing production of goods and services. Greater proportions of land, labour and technological advance must be given over to production for the sake of trade; and, to achieve this, more and more land, resources, labour-time, and thought must be turned into property, and sold as a commodity. The creation of wealth is bought at the expense of the commodification of the life-world. The global economic system can, therefore, only operate through a process of continual accumulation that extracts a surplus value from the labour of subsistence and sustainable ecosystems (see Mies and Shiva 1993).

In the sixth place, and most significantly, wealth created through economic development must be accompanied by an increase in the money supply. For the production of goods and services is one thing; the production of money is another. If economic production is to expand, so must the money supply. In practice, however, the causality works the other way round: it is the demand for profits, in the form of investment, that increases production. Money is largely supplied to the economy by banks in the form of loans: homeowners, businesses, and national governments can borrow against future earnings or revenue, and, overall, each sector faces an ever-increasing spiral of debt. Now future earnings come through increased production and trade, but debt is paid back in the form of money. So increased production through a process of continual accumulation will never be sufficient in itself to pay back debt. Instead, the money that is used to pay back debts is ultimately created elsewhere as a further debt, leading the entire global economic system

into an increasing spiral of debt, always dependent on its future expansion (see Hutchinson 1998 & 2002; Rowbotham 1998; in the UK, private sector debt stood at £30 billion in 1972, £145 billion in 1982, £605 billion in 1992, and £1,262 billion in 2002)⁶. Without such debt, the system cannot function. The quest for profit is not simply a question of power or greed. Everyone is in debt, everyone is mortgaged to the future, everyone is enslaved to expectations of future economic growth. Rates of profit are essential for survival when one is in a state of debt. A transnational corporation must maintain its edge against its competitors. A US President must act in the short-term national economic interest, whether in relation to climate change, trade wars, the UN, World Bank, IMF or WTO, or foreign military intervention; he must control access to remaining reserves of oil. A UK Prime Minister must expand the role of private funding and profits in transport, education and healthcare. An increasing proportion of academic teaching and research must be given over to commercial ends and measurable goals. Society must become increasingly fragmented into commodified and flexible labourers, travelling large distances to places of work. Individuals must derive an increasing proportion of their satisfaction from consumption, whether of goods, tourism, entertainment, or sex. And once resources become scarce, whether of fertile land, fresh water, or cheap oil, 'full spectrum domination' of military and economic spheres is the only guarantee of survival.

In short, the fundamental reason why responsible action cannot be taken to alleviate poverty and save the environment is because there is no scope for political choice in such matters: the world is ruled by an impersonal, anonymous, economic system, and not by financial speculators or investors, governments or economists. There is no more true politics.

It is time, therefore, for us to be realistic about our situation. We are locked into an abstract machine of capital that colonises all dimensions of our lives. It has successfully conquered almost all sections of the globe, disrupting indigenous societies and those ordered by religious commitment. It has overcome the secular reactions of Nazism, Stalinism, Maoism, and third world independence movements. Any appeals for reform will have to fight against a system of financial totalitarianism that controls public opinion or makes individuals feel powerless. Any attempt to return to local, subsistence economies will have to resist the colonising power that has wiped out most prior ones. Any major attempt at economic reform, such as through land taxation or social credit, must reckon with the expansionary power of the current global system, and its addiction to profit. Any election of a reformist government on a platform of social justice must reckon with external destabilisation through control of the media, military, trade, or, finally, direct

⁶ see <http://www.bankofengland.co.uk>

military intervention. All attempts to change must deal with the problem of universal debt slavery. This is what the history of the past century must teach us. It profits little to engage the properly 'spiritual' power of a system of debt with human powers of resistance, emancipation, or revolution, for in the condition of financial totalitarianism, the political powers upon which finance depends will be constantly re-born, like heads of the hydra.

Yet the era of the religion of capital is drawing to a close. The global economy, based on credit, is a speculative bubble which must one day eventually burst; we have mortgaged ourselves to the future, and one day that loan will be called in. There are a number of phenomena that point towards a forthcoming collapse of the global economic system. The contradiction between ecology and economy is the most significant. Yet there are also internal problems within the system: inequality of wealth distribution leads to a lack of purchasing power, and a problem of over-supply; financial scandals cause distrust in the system; the relative size of markets in financial capital and their increasing volatility shows that they may soon grow too great for their crises to be bailed out by national governments and international institutions; and the necessary defaults on unpayable loans as economies collapse may undermine the entire system.

Most significant, here, is the spiral of debt. Money itself is a promise to repay in the future, and thus a sum borrowed against the future. The exponential increases of government, business and consumer debt reflect a condition whereby debt is only shifted around, and never alleviated: in practice, the debts can only be repaid if someone elsewhere creates more money by borrowing further money. To avoid inflation, new money can only be created as a debt. But new loans are only issued against security if it is likely that they can be repaid with interest in due course through productive activity. The entire global economy is deeply indebted, and thus deeply committed to expansion. Given the amounts of debt involved, based on former periods of optimism, the economy is in an extraordinarily fragile state. An oil price shock may be sufficient to bring about a major collapse.

What we see occurring in the battle for resources is an increasing dependency on oil and credit, coupled with increasing instability. The sphere of human political activity and the spectrum of political choices available are narrowing ever further, squeezed by the constraints of the natural world on the one hand, and the constraints of the 'spiritual' world on the other. One can still construct alternatives, but at the moment, they cannot survive and grow. One can still contest corporate globalisation and US imperialism, but, given the power of money, there is nothing viable to put in their place. One can still protest at the extraordinary evil of the desire to blame the victims in international relations: the tyrannical wish to attack nations such as Iraq and North Korea that have been stricken in the past by military action, and recently starved by genocidal economic sanctions. One can still protest that

the corporate media encourages 'decent, civilised people' to acquiesce in complicity with the greatest atrocities of human history, as it has done for the past two centuries and more. But the collision between the economy and ecology is approaching so fast that our 'situation' will soon be changed beyond recognition, much faster than any political action will change it.

What is likely to happen? In the short term, an intensification of the principles of 'security first' (see the United Nations Environment Programme's report, 'Global Environmental Outlook 3'⁷, with increasing economic, political and military domination of the world by the United States through exercise of its already existing advantages. Over the medium term, we will see a whole range of economic collapses, for which we have models of possible futures in those that are already under way: not only stock market collapses, but collapses of currency, as in Argentina; collapses of law and order, as in Russia; deflation, as in Japan; struggles over land, as in Zimbabwe. Ecological and economic collapses may lead to rises in nationalism and racism; rises in religious fundamentalism; mass migrations; wars; and many other undesirable social consequences. All this is in addition to the environmental instabilities discussed earlier. The most significant global economic collapse, as far as our present political constitution of reality is concerned, will be that of the United States. My best guess is that this might occur in about 10-15 years' time, although it could occur at any time over the next 30 years. While economic collapse would not immediately undermine US military domination, and may even intensify it in the short term, it would probably eventually undermine the political will upon which it seems dependent.

And it will only be then, in the uncertainty that follows crisis, that there will be the possibility of human agency making a difference. In the meantime, political activity is merely a preparation for what is to come – and it will find its most fruitful form in the construction of embryonic alternatives to global capitalism. Yet what will not be automatically destroyed is the capitalist system of creating wealth as a debt on the basis of production through harnessing flows of energy. The new situation will of course require the invention of a whole range of local economies, adapted to cope with their individual predicaments. But all such local economies will be vulnerable to the predations of a perpetually buoyant, capitalist system. Those who survive will only be able to resist its temptations if they fully understand the nature of human dependency on ecosystems, land, water, air and energy on the one hand, and human dependency on strategies of hope, faith and commitment that integrate social cooperation, on the other. They will only be able to resist its temptations if they fully understand what has caused the environmental and economic apocalypse that approaches, and, in particular, the logic of

⁷ see <http://unep.org/geo>

profit and money. To clarify our understanding of our impotence within our current situation is perhaps the best gift that we can offer to our future. For only as such can we identify where power truly lies.

Works Cited

- Cameron, Murray et al. (2001) 'Solar Generation', *Renewable Energy World* 4:5.
- Derrida, Jacques (1994) *Specters of Marx*, trans. Peggy Kamuf. London: Routledge.
- Dunn, Seth (2001) 'Routes to a Hydrogen Economy', *Renewable Energy World* 4:4.
- Goodchild, Philip (2000) 'Spirit of Philosophy: Derrida and Deleuze', *Angelaki* 5:2, pp. 43-58.
- Goodchild, Philip (2002) *Capitalism and Religion: The Price of Piety*. London: Routledge.
- Hutchinson, Frances (1998) *What Everyone Really Wants to Know about Money*. Charlbury: Jon Carpenter.
- Hutchinson, Frances, Mary Mellor & Wendy Olsen (2002) *The Politics of Money: Towards Sustainability and Economic Democracy* London: Pluto Press.
- Intergovernmental Panel on Climate Change (2001) *Climate Change 2001*. Cambridge: Cambridge University Press.
- Mies, Maria & Vandana Shiva (1993) *Ecofeminism*. London: Zed Books.
- Polanyi, Karl (1944) *The Great Transformation*. Boston: Beacon Press.
- Rifkin, Jeremy (2002) *The Hydrogen Economy*. Cambridge: Polity Press.
- Rowbotham, Michael (1998) *The Grip of Death*. Charlbury: Jon Carpenter.