

THE GREAT CRASH OF 2008: POURING OIL ON TROUBLED WATERS¹

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To allow the market mechanism to be the sole director of the fate of human beings and their natural environment...would result in the demolition of society...Nature would be reduced to its elements, neighborhoods and landscapes defiled, rivers polluted, military safety jeopardized, the power to produce food and raw materials destroyed (Karl Polanyi 1954: 73)

Practical men...are usually the slaves of some defunct economist. Madmen in authority...are distilling their frenzy from some academic scribbler of a few years back (John Maynard Keynes 1936: 383)

Climate change...is the greatest and widest-ranging market failure (Nicholas Stern 2006: 1).

...the automobile...only fulfils its destiny: it is destined to wipe out the world (Ilya Ehrenburg, Russian journalist in 1929; quoted Monbiot 2006: 142)

Into reverse

The Great Crash of October 2008, and what seems like a subsequent Great Depression according to Nobel prize-winner Krugman, has taken the world by surprise (2008). Although various commentators predicted that the housing and financial bubbles in the rich north (especially in North America and the UK) could not continue for ever, the speed and scale of the financial and economic reverse has been truly astonishing. So much taken for granted has apparently gone into reverse gear. Most commentators did not presume that the world's production, financial, real estate, consumption and income systems could be so rapidly reversed. Systems had often been thought of as like oil tankers which take an inordinate time to set onto a different course. But the world economy-society has shown no such properties. It seems to have flipped over, from increasing prosperity and richer lives for many in the prosperous north to increasing misery for most. A set of tipping points were encountered and at breakneck speed all that had been presumed 'solid' about the world economy-society 'melted into air', to use Marx's terminology from the prescient 1848 *Manifesto of the Communist Party* (Marx, Engels 1888).

In this paper I examine some implications of this extraordinary turnaround in human history, a turnaround that many in the rich north never expected to see and experience, although other parts of the world have experienced massive financial reversals within the previous decade or two (Stiglitz 2007). Lives had been premised upon increasing incomes, wealth, security, movement, wellbeing and longevity. This was the modern dream which in that rich north had apparently been set in stone

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since 1945. So although there had been some striking disruptions over the half a century or so since that dream had been initiated there was little appreciation of its historical contingency and the possibility of suddenly finding reverse gear.

‘Disruptions’ over this half century included the ending of European empires and subsequent development of the [current] 27 nation European Union; the Cold War and threat of nuclear catastrophe; the 1960s decade of protest and continuing movements for civil rights, feminism, anti-nuclear, and black rights; early 1970s oil price increases and subsequent wars for oil; the collapse of the Soviet Empire; the exceptional rise of China; September 11th and the threat of global terror; and the developing science and politics surrounding the earth system in the context of multiple environmental crises.

These ‘disruptions’ during the second half of the twentieth century in the rich north mostly occurred ‘one-at-a-time’ and did not overlap and transform each other; their spatial scale was normally limited to a single society or at most a continent and were not global in their reach or scale; they did not involve reversals of entire systems (although reversals were to be found elsewhere such as Russia or Japan in the 1990s); and fourth, they did not fundamentally challenge the very resource-base of the modern dream of increasing income, wealth and wellbeing.

But the early twenty first century has involved a new scale, impact and quality of ‘disruption’ as in the 2008 Great Crash and Depression. This involves an overlapping set of system changes, and a global scale of disruption with the reversal of many systems and the global undermining of the long term resource-base of societies.

This paper explores various aspects of this Crash. It is shown that this was not only an economic or financial crash but one also concerning the world’s current and future resources. In earlier formulations Lash and I argued that capitalism historically moved through three distinct phases, from liberal to nationally organised capitalism and then to disorganised global capitalism (1987; 1994). The last mode beginning around 1980 is now widely characterised as neo-liberalism drawing its name from the kind of economics developed and globally generalised from the Chicago Economics Department. But this paper argues that there are some seeds of a new mode of capitalism that is emerging, beyond neo-liberal or disorganised capitalism, what I will term ‘resource capitalism’, a capitalism that needs development as fast as possible and in as widespread a form.

Almost all forms of nineteenth and twentieth century capitalism had operated without regard to the long term viability of their resource base. Nature or the physical world was regarded as separate from the economy and available for its maximum transformation through products and processes of short term profit maximisation. It was subject to scientific, technological, economic and visual appropriation on an astonishing scale and pace. This physical world was bent to the will of those developing new commodities and instruments and of the forms of an increasingly mobile social life that came to characterise the twentieth century. To use Marx’s terms, the *forces* of production were utterly transformed through the dominant *relations* of capitalist production. There were many critics of this exploitation of nature from the mid-nineteenth century onwards (see Macnaghten, Urry 1998). But there was little challenge to the view that the physical world was separate from and constituted

as a set of ‘resources’ available for maximum exploitation, so as to generate physical commodities, forms of transportation, manufactured commodities, services and places and sites for consumption.

But this is not simply so now. It is much clearer that capitalism has gone too far, it is devouring the very preconditions of economic and social life, problematising its own long term viability. The neo-liberal period beginning in the late 1970s, with its rampant global commodifying of almost everything has made this obvious. And the exceptional events of 2008 demonstrated beyond doubt that economies and societies show no tendency to move towards equilibrium. Indeed capitalist societies can demonstrate extraordinary levels of dysfunction and disequilibrium.

In the next section I outline some theoretical resources necessary for examining these issues of non-equilibria. In the following section I show the Great Crash was in part provoked by oil and suburban living and was by no means only a financial event, as the ‘real economy dramatically bit back. Following that I examine various aspects of the Great Crash and consider just what this means for future worlds within the potential new phase of ‘resource-capitalism’. It is noteworthy how forms of ‘non-equilibrating’ thinking and theorising have been made viable by the Great Crash, as illustrated by the popularity of books by, for example, Gladwell, Krugman and Taleb.

Beyond equilibria

My starting notion is that physical and social worlds are full of change, paradox and contradiction. There are no simple unchanging stable states or states to which there is equilibrium-establishing movement. Physical and social worlds can be characterised through what Ball calls: ‘the strange combination of the unpredictable and the rule-bound that governs so much of our lives’ (2004: 283). There are three implications of such a strange combination: there are patterned, regular and rule-bound systems; these rule-bound workings can come to generate various unintended effects; and unpredictable events can disrupt and abruptly transform what appear to be these rule-bound and enduring patterns.

The ‘normal’ state then is not one of balance and equilibrium. For example, populations of species can demonstrate extreme unevenness, with populations rapidly rising when introduced into a given area and then almost as rapidly collapsing. Any system is thus ‘complex’. Policies never straightforwardly restore equilibrium, unlike the claims of policy makers! Indeed, actions often generate the opposite or almost the opposite from what is intended. So many decisions intended to generate one outcome, because of the operation of a complex system, generate multiple unintended effects very different from what is planned (see Budiansky 1995; Urry 2003).

Moreover, movement from one state to another can be rapid, with almost no stage in between. These strikingly abrupt transformations are called phase transitions. For example, as a gas is cooled it remains a gas until it suddenly turns into a liquid (Ball 2004: 106). This rapidity can also be seen in transformations between each ice age and the periods of relative warmth that occurred in-between. There are only two states, the glacial and the interglacial with no third way. Ice core research shows that there was abrupt movement from one state of the earth’s system to the other, sometimes characterised as ‘punctuated equilibria’ (Pearce 2007).

Systems thus generally do not move towards equilibrium. The equilibrium models historically dominant in most economic system analyses, especially general equilibrium models, are inappropriate since they ignore the huge array of positive feedbacks and imagine that all feedbacks will be negative and equilibrium-restoring (Arthur 1994; Beinhocker 2006: chap 3). Keynes captured the significance of this when examining the ‘chronic condition of sub-normal activity’ (1936: 249). Beinhocker describes the main lineaments of complexity economics and contrasts it with traditional ‘equilibrium’ economics (2006: Table 4-1, 97), a move similar to Soros’s advocacy of a ‘reflexive’ as opposed to an equilibrium paradigm for analysing and intervening within financial markets (2008).

It follows that we should not distinguish between equilibrium states and growth states – all systems are dynamic, processual and demonstrate the power of the second law of thermodynamics, that physical and social systems move towards entropy (Beinhocker 2006: 66-7). Malpas and Wickham analogously critique the notion that the social systems typically examined in sociology also necessarily move towards what can be called ‘social equilibrium’ (1995).

Thus systems can be broadly viewed as unpredictable, open rather than closed with energy and matter flowing in and out (Prigogine 1997). Positive feedback mechanisms take systems away from equilibrium states, as in Keynes’ analysis of the accumulating positive feedback consequences of a fall in consumer confidence (1936). Systems are characterised by a lack of proportionality or ‘non-linearity’ between apparent ‘causes’ and ‘effects’. There *can* be small changes that do bring about big, non-linear system shifts, as well as the converse (Nicolis 1995).

Moreover, because of how systems co-evolve and mutually adapt it is almost impossible for social groups to anticipate what in particular circumstances would be the best means of effecting system change. So although many social groups struggle to realise projects of huge social change, it is enormously hard to do so in ways that produce anything like the intended outcomes, especially if the change is or has to be global. Knowing what will engender desired global change is almost impossible, there are too many ‘unknown unknowns’. Unintended consequences stretch across the time and space of economic, social and political innovation; and these consequences themselves engender further adaptive and evolving system consequences.

Nevertheless, there can be moments of heightened openness, when the die is less cast and various futures are structurally placed upon the table. Not that such change is uncaused but it is less reducible to pre-existing, path dependent systems. There is less lock-in; Laszlo refers to ‘chaos points’ when systems may tip from one path to another (2006). In the rich ‘north’ the period around 1990 seems to have been a recent moment when a wide variety of political, informational and communicational systems more or less simultaneously tipped onto a new path (Castells 2001; Urry 2007: chap 8).

But not all will change. While change is normal, certain systems are stabilised for long periods (Abbott 2001). Causation flows from contingent events to general processes, from small causes to large system effects, from historically or geographically remote locations to the general (Arthur 1994; Mahoney 2000). Path dependence is a process model in which systems develop irreversibly through a ‘lock-in’ but with only certain small causes being necessary to prompt or tip the initiation

of each 'path'. Systems once established can get 'locked in' and their patterns and rules survive for long periods even though there appear to be strong forces that 'should' have undermined them (Arthur 1994). Institutions matter a great deal as to how systems develop. Such institutions can produce long term irreversibility that is: 'both more predictable and more difficult to reverse' (North 1990: 104; Dennis, Urry 2009: chap 2). 'Time matters' in how events and systems develop (Abbott 2001). Overall systems adapt and co-evolve in relationship to each other and hence possible futures are irreducible to single 'structures', 'events' or 'processes' (Wynne 2005) and futures can be messy and complicated (Law 2004).

The importance of small but potentially fateful changes has been described through the theory of black swans which are rare, unexpected and highly improbable events that can have huge impacts. They are outliers not averages. Black swans are responsible for much economic, social and political change in the world. They make history not crawl but jump. The most important events are those least predictable (Taleb 2007: 166-7). Thus when change happens it may not be gradual but occurs dramatically, at a moment, in a kind of rush (Gladwell 2000). If a system passes a particular threshold, switches or tipping points occur through positive feedback and 'punctuated equilibria'. The system turns over, as with the internet growing dramatically in the late 1990s as countless people and organisations adapted and co-evolved with its extraordinary emergence (Castells 2001), or where minor increases in global temperature may well provoke out-of-control 'global heating' (see Lovelock 2006).

Few social scientists have drawn upon these ideas but the concept of contradictions developed by Marx gets close (Urry 2003). Biologist John Maynard Smith states that Marx and Engels: 'were trying to understand ...complex systems in a world in which there was no mathematical language ...that they could use to describe them' (1994: 688-9). Marx explores how the very adaptations and co-evolutions that involve the making of profit are simultaneously those that generate capitalist crises and through positive feedback the strengthening of the proletariat. Metaphorically this can be characterized as the genie being let out of the bottle and which cannot be easily returned.

Elsewhere I show how a high carbon economy/society is the emergent contradiction that *twentieth* century capitalism came to generate and which, as we move into the next century, cannot be put back into the 'bottle' (Dennis, Urry 2009). The twenty first century has to live with the contradiction between ever developing commodification and massive exploitation of 'nature', and a 'nature' which is progressively unable to sustain the condition for continued commodification. Twenty first century capitalism urgently needs to generate forms of innovation, governance and reduced carbon patterns of life so as to deal with the unsustainable consequences of this contradiction that moreover lies at the heart of the current financial and economic collapse as I now try to show.

Suburbs and oil

I turn to certain elements of the economic and financial collapse of 2007-8 using terms and distinctions just discussed. Various interdependent processes created what turned out to be an unsustainable 'bubble' of private, corporate and national indebtedness especially within the US, but then in countless ways throughout the world. Globalizing levels, forms and instruments of

indebtedness was one crucially significant feature of the very nature of 'globalization' that was insufficiently recognized or examined even by 'critical' social scientists (but see Sassen 2009).

Especially significant in generating and then generalizing throughout much of the world this American-led 'casino capitalism' were the following: neo-liberal light regulation by most national states, new risky forms of lending by investment banks, the undermining of the distinction between commercial and investment banking, new risky business models within most financial institutions, the culture of bonuses that rewarded indebtedness and risk taking, trillion dollar growth in financial securitization especially through collateralized debt obligations, credit default swaps, the lowering of lending standards especially to domestic and corporate purchasers of marginal properties, the proliferation of hedge funds, the relentless search for ever new forms of heavily leveraged investments and speculation, the offshoring of huge tax revenues, the belief that private sector models could do no wrong (even if they were ill-understood) and would generate ever greater profit and wealth for especially those already excessively rich, and the generation of an overwhelming imbalance between 'financialisation' and the 'real economy' (see partially 'insider' critiques Stiglitz 2006; Krugman 2008; Soros 2008; as well as Sassen 2009).

This bubble, or actually a set of overlapping and interdependent bubbles, generated the expectation that this financialisation could continue to be blown up for ever, that it was without limit. This expectation came to be built into most forms of calculation, as households and corporations adapted and co-evolved to such processes of apparently ever-expanding growth. This finance system bubble was especially facilitated by the virtualization of money, calculation, and the capacity to generate new forms of 'virtual' calculation, a set of consequences resulting from the 1990s moment as life was 'digitised'.

There were until then two distinct kinds of things that provided the background to people's everyday lives: the 'natural world' of rivers, hills, lakes, soil, storms, crops, snow and so on; and the 'artificial' objects of the industrial revolution, such as trains, pipes, steam, screws, watches, lights, paper, radio, cars and so on. But from 1990 onwards a new background emerges (Dennis, Urry 2009: chap 1). This is the world of 'virtual' objects, of computer and mobile screens, cables, computer mice, signals, satellites, ringtones, texts, sensors, software and so on. In the background of twenty-first century life are virtual objects, hovering and increasingly taken-for-granted, 'smart', sensing, adapting to and transforming especially lives within financial corporations. Such software makes certain actions seem unexceptional and unproblematic, that the product can be purchased, the gain made, the meeting will happen, the money will arrive, the deal can be done, the profit can be made, the debt can be passed on.

And as this virtual money system accelerated so it became more detached from and at odds with the time-space structuring of the 'real economy'. The global value of financial assets, that is debt, was by September 2008 \$160 trillion, 3.5 times world GDP (Sassen 2009: 2). From the 1980s onwards, acceleration became the name of the game (see Rosa, Scheuerman 2009, on the 'high-speed society'). It showed the workings of positive feedback and movement away from equilibrium especially through speeding up processes via 'turbo-charged' virtualization (I am grateful to Michael Hulme for this). Indeed this set of processes can be characterized as 'disequilibrium feeding upon

disequilibrium'. This is not so much *a* vicious circle as a 'vicious circle of vicious circles' which no one apparently comprehended let alone could 'govern', even according to George Soros, one of the 'masters of the universe' (2008)!

But to continue the bubble metaphor, bubbles always burst and they burst most dramatically and painfully when they have filled with more and more hot air. The bursting of this monetary bubble first in the US from 2005 onwards and then worldwide had astonishing and dramatic consequences for the real economy. In this section I examine one element of what we might term the 'revenge of the real', just how the real economy and especially the issue of 'resources' came to bite the hand that had apparently fed it. This analysis requires a brief examination of the crucial aspect of the real economy, of oil within modern, mobile society and especially when societies develop 'bubbles' that do in the end depend upon homes, property, cars and everyday suburban lives.

During the second half of the C19th, from 1859 onwards, there were increasing discoveries of oil, which came to be the fuel that moved cars and trucks from the 1890s onwards (Dennis, Urry 2009: chap 2). While oil in the form of kerosene powered aircraft after the 'invention' of airflight by the Wright brothers in 1903 (Cwerner, Kesselring, Urry 2009). The increasingly mobile C20th came to be path dependent upon cheap and plentiful 'mobile' oil or 'black gold'. The 'social practices' of modern life came to involve regular and predictable long distance movement of people (commuters, holidaymakers, and families and friendship groups) and of objects (including water and food). Today's global economy and society became deeply path dependent upon abundant cheap oil: 'o[O]il powers virtually all movement of people, materials, foodstuffs, and manufactured goods – inside our countries and around the world' (Homer-Dixon 2006: 81). Oil is remarkably versatile, convenient and during the C20th relatively cheap. It became vital to virtually everything that *moves* on the planet including many foodstuffs (Pfeiffer 2006) and, in the form of plastic, to most manufactured goods.

Because of US dominance in these developments, the C20th can be viewed as the 'American' century. This involved the development of many new socio-technical systems and then the moving of these systems around the world, through American firms, the US military and multiple cultural practices of film and TV (Nye 1999, on the linking of suburbs, electricity and cars). With 5% of the world's population, the US accounts for one third of global wealth, nearly a quarter of world energy consumption, one quarter of total carbon emissions, one third of the world's cars (over 650m worldwide) and produces nearly half of transport-generated carbon emissions (which are the fastest growing sources of carbon emissions; Burman 2007). It seemed that this modern mobile civilization would continue into the foreseeable future with 'mobile lives' spreading to all continents and most peoples (Urry 2007). The neo-liberal 1990s gave a upward shift in such American-generated 'liquid modernity' (Bauman 2000) or 'borderlessness' (Ohmae 1990). Stiglitz terms this the 'roaring nineties' as the American 'good [mobile] life' spread, with neo-liberalism becoming the dominant global orthodoxy: 'incorporated into the common-sense way many of us interpret, live in, and understand the world' (Harvey 2005a: 3, 2005b; Stiglitz 2006; Klein 2007).

But there was one big problem and that was that oil is no longer plentiful and growing in supply. Three barrels of oil are now consumed for every new one discovered. It is a unique resource that is

running out and for which there are currently no simple substitutes. The peaking of oil in the US occurred in 1970 and the US now imports 60% of its supply and this may rise to 75% by 2030 (Strahan, 2007: chap 2; Burman, 2007: 26-9). Worldwide the largest oilfields were discovered half a century ago, with the peak of oil discovery being in the mid 1960s. Strahan refers to the 'imminent extinction of petroleum man' (2007: 62-3). Oil production worldwide is likely to peak by around 2010 although this is hugely contested partly because of the lack of impartial data (Leggett, 2005; Heinberg 2005; Strahan, 2007; Giddens 2009; but see Jackson 2006). The US's efforts to increase access to oil sources outside the US since the decline in its domestic oil production produced the violent subjugation of Middle Eastern peoples and states in the name of the 'freedom' of US citizens to drive and to heat/air-condition their homes.

Over the long term oil will be increasingly expensive and there will be frequent shortages because of the fall in *per capita* availability around the world. There is not enough oil to fuel worldwide systems of global consumption that need, with 'business as usual', to double by 2050 (Homer-Dixon 2006: 174). Heinberg summarises how: 'industrial civilization is based on the consumption of energy resources that are inherently limited in quantity, and that are about to become scarce...in the end, it may be impossible for even a single nation to sustain industrialism as we have known it during the twentieth century' (2005: 1). There will be an ending of the 'petroleum interval' in human history which could turn out to be only a brief (twentieth) century or so of Easy Oil. The Transition Towns movement interestingly seeks to deal with the global significance of the ending of cheap, plentiful oil by moving from 'oil dependency to local resilience' (Hopkins 2008; see the dramatic graph of past and present oil production in Heinberg 2005: 31).

This energy descent is especially troublesome since the world's population is currently increasing by about 900 million people per decade, the largest absolute increases ever recorded and will reach 9.1 billion by 2050 (Gallopín et al 1997). City-based populations use much more oil and other expensive energy than do rural populations, and symbolically the world went over 50% urban in 2007 (Dennis, Urry 2009: chap 1).

More or less simultaneously with the peaking of oil, climate change brought about by exceptional fossil fuel use resulting from multiple human practices is now seen as 'unequivocal' by the Intergovernmental Panel on Climate Change (IPCC 2007). Through the IPCC, the organised actions of scientists around the globe have transformed public and policy understanding and have mostly marginalised climate change denial discourse. The authoritative Stern Review states this catastrophic market failure will engender a 50% risk of more than a 5°C increase in temperatures by 2100 and this would utterly change the world's physical and human geography (2007: 3). Even a temperature increase worldwide of 3°C overall is beyond known experience and would transform temperature patterns, rainfall, urbanisation, crops, glaciers, seas, animals, ice sheets, forests and the character of human life. Much understanding of the sciences of climate change deploys the language and concepts of complex systems and tipping points (Rial et al 2006; Lovelock 2006; McCracken, Moore, Topping 2008).

Thus oil is key to examining the trajectory of the rich North both because oil is running out and in order to limit greenhouse gas emissions over this coming century. Oil lubricates life and has

especially lubricated American life and this is central to examining the Great Crash of 2008. How is this the case?

We return to 'neo-liberalism' which involves 'accumulation by dispossession' (Harvey 2005b). Peasants are thrown off their land, collective property rights are made private, indigenous rights are stolen, rents are extracted from patents, general or traditional knowledge is turned into intellectual 'property', the state sells off its collective activities, trade unions are smashed, new financial instruments and flows redistribute income and rights away from the 'real economy', and property development financed by indebted firms and indebted buyers is the particular form taken by the 'neo-liberal 'gold rush'. While obliging national states to create and pay for large infrastructure motorways, high speed rail links and airports, so the private sector speculatively funds and builds highly leveraged new developments leased or sold to those with escalating indebtedness. These developments include suburbs, apartments, second-homes, hotels, leisure complexes, gated communities, sports stadia, shopping centres and casinos. These are sometimes all found in one place such as Dubai which moved from a significant oil producer to the most profligate consumer of oil for building projects and for flying visitors in to consume such places (Elliott, Urry 2010). Other times such developments are spatially spread out as I now examine within the US.

The Great Crash seems to have been activated in part by the speculative building and risky funding of extensive tracts of 'marginal' suburbs and related shopping and leisure developments within the US. Many US suburbs in the 1980s onwards were built distant from city centres and not connected by mass transit which is anyway fairly rare in North America. These suburbs thus depended upon car travel and hence upon cheap oil for people's work, leisure and social life. And the housing has been extensively 'sold' to people with 'sub-prime' employment, credit and housing histories. So although the sub-prime housing is known to have been 'causal' within the set of events that 'triggered' the Great Crash and indeed earlier events, what has not been examined is how these sub-prime suburban tracts were according to Cortright *Driven to the Brink* by the combination of oil dependence and oil price spikes in the few years beforehand (2008). This was the extreme event, the black swan, that 'came from nowhere' but which rocked the unstable US housing-finance system that was in a state of self-organised criticality. This oil price spike also seems to have put paid to the Dubai model since according to Lewis its development has been: 'Too high, too fast: the party's over for Dubai' (2009).

Oil shortages throughout the world had generated a significant rise in petrol prices both worldwide and in the US. The index of petrol prices in money terms for the US as a whole was 134 in 1990 and the same (138) in 2000 (end of year figures). The roaring 1990s especially of house price inflation, which ran 2.5 times the increase in per capita income, was thus premised upon the falling real price of petrol (Cortright 2008: 3). Petrol prices remained more or less constant until 2003 (145). But then the oil price dramatically spiked, reaching 302 by 2007 and a peak of 405 by 2008 (July). In February 2009 the petrol index was still much higher than at the beginning of this process at 186 (http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_history.html; accessed 27.02.09).

So if there was this very significant increase in petrol prices in the middle of this decade, what were its effects? Cortright's research shows the dependence of suburban housing upon the price of oil and

more generally on how the exceptional American housing boom was brought to a shuddering halt through the escalating price of petrol which tipped households over the financial brink (2008).

For decades the growth of suburban housing had been predicated upon cheap petrol; it made sprawl economical. And during this period, 1997-2006, house prices had more than doubled. But as the price of petrol increased, so this meant that potential buyers of property had to reduce what they were able to pay for housing and at the same time they had less money to pay for other goods and services including new cars. According to Hamilton, the: 'the oil price increase was one factor pushing home sales and house prices down' very rapidly (2009). Cortright argues that: 'in the heated atmosphere of the bubble, gas [ie petrol] price increases may have been the trigger that broke the expectations of continued growth' (2008: 5). House price falls were most marked in suburbs rather than metropolitan cores and especially in those distant scattered suburbs. This would seem to be because of the rising cost of lengthy commutes, visits to friends and family and shopping trips. These house price reductions in far flung suburbs were most marked where there were no travel alternatives to the motor car and hence there was the greatest dependence upon the price and the availability of petrol. Households were spending up to 30% of their income on travel (Cortright 2008: 17). Indeed as a result of these processes there has been a 4.3% reduction in the distances that American travelled, the first downward shift of US mileage for thirty years or so (Ghazi 2008; Cortright 2008: 17).

Thus 'households are being made to rethink another cherished American institution – the white picket-fenced suburban dream home' (Ghazi 2008). Thus house prices in commuter belts appear to have dropped very steeply, so much so that some suburbs have become known as empty 'ghostburbs', full of for sale signs as opposed to inner city sites which have not seen such rates of house price falls (Ghazi 2008). House prices collapsed overall. And this generated a more general reduction in consumer spending, similar to 1990-1 during the first Gulf War (Hamilton 2009). And these reductions in turn seem to have produced a marked decline in car sales with at least 150,000 fewer people employed in the US motor industry. There are huge reductions in sales especially of gas-guzzling SUVs, all the US car manufacturers posted huge losses and sought vast Federal government bailouts, and European subsidiaries of American firms may go 'independent' (Hamilton 2009). The iconic 20th American car firms that have been such key constituents of the American Empire are thus close to collapse because of the oil price increase and the ensuing Great Crash and Depression. Some commentators describe this complex of interdependent systems as a 'perfect storm'.

In the final section I examine how this Crash could come to engender a new 'capitalism'.

Resource-capitalism

'Neo-liberalism' has been the predominant form of economic and social restructuring over the past twenty-three years. This neo-liberal period involved on a global scale the commodifying of almost everything, including bodies, basic utilities, futures, education, prisoners, personal experiences, health, risks, debt, medicines, islands and so on. Especially significant was how it involved a new phase of intensive resource-use in housing, travel and consumption, heightening the use of fossil fuels and temperature rises and the speeding up in use of the declining resource of oil (and gas, Darley 2004; Elliott, Urry 2010).

Klein shows how in much neo-liberal restructuring states are crucial to eliminating ‘unnatural’ forces, to destroying many pre-existing sets of rules, regulations and forms of life that slow down economic growth and constrain the private sector (2007). The freedom of the market and especially of financial markets has been effected by states wiping the slate clean and imposing sweeping free-market solutions especially where various kinds of disaster have occurred. Klein states: ‘only a great rupture – a flood, a war, a terrorist attack – can generate the kind of vast, clean canvases they crave. It is these malleable moments...that these artists of the real plunge in their hands and begin their work of remaking the world’ (2007: 21). Thus global forces will not necessarily find unattractive this astonishing ‘disaster’ of 2008, the worst economic collapse since certainly 1929. It will provide a clean slate, a shock treatment, a ‘creative destruction’ that may enable the work of remaking the world. The question is of course how that world is to be remade and whether the ‘disaster’ of the Great Crash and Depression is going to tip many of the world’s societies away from neo-liberalism but to what? Indeed that remaking is happening behind the scenes, not as a coherent policy but certainly in a panic to root out the bad ‘apples’ of financial capitalism and to ensure that some of that capitalism remains.

The unpredicted and extreme events of that year reorganised the relations of markets and states, of finance and the real economy, of risk and commodity. It provides some conditions for a new world order to deal with the hugely problematic issue of the ‘resources’ underlying contemporary societies. It is possible that the global market failure of the 2008 Crash will enable global progress to be made in dealing with other global market failures, of global climate change and the premature using up of the world’s finite resources of oil.

I now set out some contours of the world order that the crash and depression have ushered in. This market failure commenced in the very heart of the world economy and not in an economy that could be deemed distant (such as those in Latin America: see Krugman 2008: chap 2). The Crash reveals an emergent contradiction at the centre of contemporary capitalism with further unfolding catastrophes potentially tipping economic and political discourse and practice away from neo-liberal orthodoxy (as even Alan Greenspan seems now to recognise: 2008; Commission on the Measurement of Economic Performance and Social Progress 2008; Walby 2009, on a ‘social democratic’ post neo-liberal programme).

The Crash is providing some of the conditions of existence of a post neo-liberal agenda. This consists of a range of ‘perceptions, policies and practices’:

1. markets on occasions seem to destroy the very conditions of the market economy, they are not to be seen as *necessarily* generating the solution to economic crises; they can generate massive diseconomies and moves away from equilibria
2. there are no obvious equilibria in financial markets since markets generate bubbles that are never sustainable in the *long* run; the private sector cannot be relied upon to ‘solve’ bursting bubbles or to generate optimal levels of financialisation
3. markets tend to generate huge social inequalities that worsen the conditions of the poor and involve resentment-inducing consumption by the ‘greed is good’ predominantly male rich

4. 'states' are in the long term necessary for all successful economies; hence appropriate and fair tax revenues are especially essential and require the closing down of secret tax havens
5. global crises require *global* actions by states or 'state-like' organisations in order to deal with them on an appropriate scale; thus regulations are necessary for all markets, the only issue being the form of regulation and the avoidance of perverse effects which is of course no easy task
6. since there are financial market failures, then there can be other market failures such as that of 'global heating' and greatly increased oil insecurity as I have briefly elaborated
7. solutions to crises are as much societal as economic, as much involving the real economy as the money economy, as much long term investment as short term profit maximisation
8. given that there are tipping points in financial markets, so there can be tipping points elsewhere as in the earth's climate or the price of oil
9. as the Crash is reducing the size of the American economy, so it may also reduce the dominance of the US over the rest of the world (something recognised by Pres Obama)
10. solutions to the crash and depression will also have to resolve the escalating costs and conflicts of climate change and energy insecurity; this perfect storm needs a perfect 'green new deal' to set the world economy onto a new path without which plausible scenarios of the future look increasingly bleak

Part of the strength of neo-liberalism had been its enabling of the 'American empire' to remake much of the world in a neo-liberal vision (Harvey 2005a, 2005b). Neo-liberalism enabled American companies to dominate world markets. So-called freedom turned out to be the freedom of American companies to dispossess and then to take over industries, regions and whole countries. In dozens of ways the US remade the world in its image through scores of bases worldwide, overt military power, think tanks, advisers, consultants, and US-dominated international organisations such as the IMF and World Bank (see Perkins 2006; Burman 2007; Haseler 2008: 192-4). These agents included what Perkins, as a previous insider, characterises as 'economic hit men' who ensnared other countries and corporations through networks of indebtedness (2006). The principal value promulgated through neo-liberalism was: 'to inspire us all to consume, consume, consume. Every opportunity is taken to convince us that purchasing things is our civic duty, that pillaging the earth is good for the economy' (Perkins 2006: xiii).

But this 'American empire' is in relative decline, by comparison with the European Union, China and in different ways Islam (Rifkin 2004; Stiglitz 2007; Haseler 2008). The US is no longer the overwhelming global force and has to find its way within a world of contending powerful entities and a set of global processes that seem 'out-of control'. What are the different ways in which the US is no longer imperially dominant?

First, the rest of the world no longer needs the US's 'protection' in relationship to what was the USSR during the long Cold War. More generally there is a decline in the degree to which populations around the world 'admire' and look to the US as the obvious model of the 'good society' with its high rates of murder, crime, obesity, financial incompetence and fraud.

Second, various sources of evidence on citations, patents and copyrights suggests that the US has not maintained its degree of scientific and technological leadership over the rest of the world and

especially over Europe, Japan and China that it most definitely possessed during the second half of the last century.

Third, during the early years of the new century the US has been isolated because of its refusal to implement the Kyoto Protocol dealing with climate change. Relatedly, its declining supplies of oil and gas noted above means that it is reliant upon unstable alternative and often distant and costly sources, something recognised by former President G. W. Bush and which would seem to have resulted in the US's catastrophic failures of militarism and 'free market fundamentalism' in Iraq and Afghanistan, with these wars costing trillions of dollars.

Further, the US continues to generate huge budget and Balance and Payments deficits and extraordinary levels of indebtedness and financial insecurity. At the same time, the EU has so grown that its economy and society are now significantly larger than the US and possesses in the Euro the world's strongest currency (in early 2009) and one increasingly used for worldwide commodity transactions (Haseler 2008: 206-8; Walby 2009). Similarly, the rapidity of China's growth means that it will overtake the US in the sheer size of its market, in its very high level of savings and in its display of an alternative model of successful development to that of fundamentalist deregulated market-capitalism (Guthrie 2009).

Finally, I noted *above* the Great Crash commenced from the financial meltdown in the US property markets which has then spread worldwide. Instead of exporting the free market American Dream, the US is exporting the American nightmare on Main Street. For these and other reasons the US is by no means still the undisputed world leader. The Neo-Conservative Project for a New American Century now looks wide of the mark and the new century will be characterised by multiple and contending powerful.

Thus the neo-liberal period with rampant global scale of commodifying almost everything, including bodies, futures, experiences, health, risks, debt and so on, has made it crystal clear just how economies and societies show no tendency to move towards equilibrium (Soros 2007). Indeed they often and persistently move in the very opposite direction. And they can tip abruptly and dramatically especially through the occurrence of events at the extreme, such as oil price spikes which will regularly happen in the future.

Thus there are coming into play a set of perceptions, practices and policies that could tip contemporary societies into a post neo-liberal era of resource-capitalism, a capitalism in which there are massive limits surrounding the form, scale and character of economic and social practices. To use Marx's terms, under resource-capitalism the forces of production constrain the relations of capitalist production and consumption and especially its degree of financialisation. It is the long term forces of production that have to be regarded as the basis of all economies/societies. Resource capitalism involves ensuring the long term viability of the earth's resources which capitalist economies/societies deploy and depend upon.

Climate change, like global financial crises and the peaking of oil, shows that the private pursuit of individual gain around the world has resulted in a collective outcome at the global level which

undermines the very future of capitalism. The need for a resource-capitalism is now being articulated by various leading commentators. Stern's *The Economics of Climate Change* is an attempt to bring about a new post neo-liberal consensus. It concludes with the rallying cry that: 'reducing the risk of climate change requires collective action...It requires a partnership between public and private sectors, working with civil society and with individuals' (Stern 2007: 644). Likewise Stiglitz's *Making Globalization Work* presents a similar post neo-liberal line of argument with chapters on making trade fair, lifting the resource curse, saving the planet and democratizing globalization. The book is organised around the claim that 'another world is possible' (Stiglitz 2007). A further Nobel prize-winner Krugman examines *The Return of Depression Economics* and the need to develop a different economic model especially from that of Alan Greenspan and his bursting bubbles (2008). Anthony Giddens, one of the west's leading 'public social scientists', has recently called for a positive model of a low carbon future that will involve states thinking ahead, making interventions, countering businesses which block climate change initiatives, developing appropriate fiscal stimuli and planning overall for low carbon futures (2009: chap 5).

Conclusion

This paper has thus explored various aspects of the Great Crash and resulting Depression. I have shown how this set of exceptional events demonstrates the need for different ways of thinking economic, physical and social processes, especially highlighting the importance of extreme events, tipping points and path reversals. I have further shown that although this has been an extraordinary financial event, it is also one concerning the world's current and future resources, especially through the significance of the extreme event of an oil price increase that undid the sub-prime housing market in the US, beginning at the suburban margins that were dependent upon cheap and plentiful oil. It is a forerunner of many further such events where the world's resources have the capacity to 'bite back', undermining the notion of a neo-liberal world that operated as though history had ended since there were no real constraints upon economic and financial developments. It was believed that we were, or at least some were, 'masters of the universe'. We clearly were not, more like 'slaves of small-scale extreme events'.

I went on to argue that there are some seeds of a new mode of capitalism, beyond neo-liberal or disorganised capitalism, 'resource capitalism'. Here nature is not regarded as separate from the economy and available for transformation through products and processes of short term profit maximisation. If there are such gigantic market failures as the Great Crash, so likewise nature cannot be bent to the will of those corporations developing ever-new commodities and instruments and the forms of social life that came to characterise the 'over-mobile' twentieth century. Thus there can be other market failures when resource constraints could be much more cataclysmic than oil price spikes in some US suburbs.

In this new century capitalism will have to be restructured so as to control those powers that were set in motion during the unprecedented high carbon twentieth century and which various doomsday analysts consider are destined to wipe out much of the modern world (Diamond 2005; Kunstler 2006). It was the genie that got let out of the bottle. In the twentieth century powerful high carbon path dependent systems were set in place, locked in through various economic and social institutions. And as the century unfolded those lock-ins meant that the world came to be left with a high and

unsustainable carbon legacy. Just as the killing fields of Iraq and Afghanistan were one bleak legacy of that high carbon inheritance, so the bursting of the debt bubbles along the sub-prime suburbs of the US were another legacy of which this century will see plenty more in the next few decades.

Extreme events, bursting bubbles, tipping points, system reversals, unpredictable paths and non-equilibria will all characterize this new century. Perceptions, practices and policies need to develop fast and furiously along the lines of a resource-capitalism in order that this century does not turn out to be a very dark and dangerous century indeed. Strangely the Great Crash and depression could have provided that tipping point to such a resource-capitalism. And whether that does materialize depends upon what Giddens terms the 'politics of climate change' (and of peak oil; 2009). Will that politics be able to bring about system changes that quickly and effectively shifts the world's 'economy-and-society' to a comprehensive and global low carbon future? Indeed can capitalism be so transformed? Is its neo-liberal variant irreversible or has October 2008 dealt it such a death blow?

Many commentators now argue a doomsday scenario and in some ways the critique of neo-liberalism often takes a kind of 'apocalypse now'. This apocalypse consists of the continuation of neo-liberalism, increases of global temperatures that make much plant, animal and human life impossible, the running out of oil and gas, the increased lack of resilience of many societies, a global failure of economy and finance, population collapse, increasing resource wars, huge food shortages, in short a perfect storm that will make the Great Crash of 2008 seem like a birthday party by comparison (Heinberg 2005; Diamond 2005; Homer-Dixon 2006). As Tainter wrote so presciently over twenty years ago: 'however much we like to think of ourselves as something special in world history, in fact industrial societies are subject to the same principles that caused earlier societies to collapse' (1988: 216). Resource capitalism needs to get going very soon indeed or few resources may remain as 'industrial societies' may turn out to be a brief footnote in the earth's history.

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