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FROM RISK TO RESILIENCE. TECHNOLOGIES OF THE SELF IN THE AGE OF CATASTROPHES[1]

INTRODUCTION

In Ulrich Beck's (1992) overly familiar and alarmist language, the emergent 'age of catastrophes' forces us to move from the calculable to the incalculable future, or more precisely from governing through risk to governing by reliance on 'uncertainty'. Statistical risk techniques, he asserts, can no longer predict the global 'modernization risks' that are the most significant threats to our existence. Global warming, global terrorism, holes in the ozone layer, nuclear disasters and so on are all examples of human-generated catastrophes not recognised until their effects become manifest. To deal with these, it is argued that governmental prediction must abandon the precise probability techniques of risk, and enter the realms of 'uncertainty'—meaning that only estimation and imagination can prepare us for the future. Of course, this is a crude binary, suggesting that either we have statistical calculation of the future or virtually no useful capacity at all to calculate. Elsewhere I have argued that such a response itself falls into a trap that elevates the importance of risk, insofar as we are seen as plunging into chaos without it (O'Malley 2003). Yet, of course, governments relied solely on anticipatory governance before there was risk, and most modern institutions and arrangements, including Beck's bell-wether of insurance, have long and profit-

ably relied extensively on non-statistical estimation of hazards. (O'Malley 2003, Bougen 2003, Ericson and Doyle 2004).[2]

Central to all such 'uncertain' techniques is what Jeremy Bentham (1962) termed the 'disposition to look forward' — the liberal duty of foresight. Formalised into doctrines of 'reasonable foreseeability' and 'negligence' in areas such as contract and tort law, they were equally the essence of a disciplinary regime for the poor essential to creating them as diligent and prudent subjects. (O'Malley 2000) In this sense, uncertainty combines the act of imagination by which to project actions into the future, and the application of an everyday calculus — based on experience — in order to estimate their likely consequences. This 'reasonable foresight' became a skill and responsibility for all liberal subjects in the 19th century.

This foundational liberal technique for governing uncertainty has been updated and elaborated, and out of it new forms have recently innovated — especially since 9/11 so graphically illustrated the vulnerabilities of risk-predictive techniques. Most of these innovations, I will argue, are only slightly more sophisticated versions of what Bentham (1962) in the 18th century understood perfectly as the 'yoke of foresight'. These are discussed below as 'precaution'. 'speculative preemption', and 'enactment' or 'preparedness'. They are marked by a shared defensive stance in which the future is littered with imaginable disasters. All share a belief that traditional statistical risk techniques alone are an inadequate defence. They also share a subject who is the subject of prudence. As noted, the prudent risk avoider was one of Bentham's subjects of foresight – for example the thrifty, self-denying and diligent worker who prepared for the rainy day. But while prominent, this was only

one of Bentham's principal subjects. The other, tellingly, was the entrepreneur, and of late this has been influencing other innovative responses to the problem of governing situations of high consequence and high uncertainty. In the past quarter century, it has become commonplace to observe that were are witnessing a remodelling of liberal subjects in line with a neo-liberal vision of everyman as entrepreneur of himself. (Foucault 2008:256)[3] Extensively shaped by the fusion of a radical vision of business as uncertainty with the emergence of scientifically optimised training, a strategy or technology of individual resil-ience is being developed that is intended to create subjects who are not merely prudently defensive. The new subjects of resil-ience are being designed in ways of being human that allow them to live in positive freedom under conditions of radical uncertainty.

IMAGINING SECURITY

In its *Full Report of the National Commission on Terrorist Attacks Upon the United States*(National Commission 2004), the Commission asked how it was that that the US Government failed to anticipate and prevent the terrorist attack. Its conclu-sion was that the disaster was the consequence of a lack of imagination. Trawling through an enormous mass of informa-tion relating to intelligence and analysis leading up to the event, perhaps it was inevitable that among the hundreds of imagined scenarios, some resembled the twin Towers catastro-phe. The National Commission (2004: 339-46) noted numer-ous 'telltale indicators' that had attracted little attention. Thus 'the North American Aerospace Defense Command had imag-ined the possible use of aircraft as a weapon' and 'one prescient

pre-9/11 analysis of an aircraft plot was written by a Justice Department trial attorney'. (National Commission 2004: 346) The National Counterterrorism Coordinator (Richard Clarke) informed the Commission that he had been concerned about the dangers posed by commercial aircraft, but he attributed this 'more to Tom Clancy novels than to warnings from the intelligence community'. (2004: 347)

Perhaps by ignoring the logistics of evaluating the stupendous array of other imaginable scenarios that had been toyed with by one or other of the thousands of experts in the field, the Commission concluded that the event could have been prevented if only these imaginings had been taken seriously—and of course, it meant in particular consideration of the one unlikely scenario that actually eventuated. The Commission convinced itself that 'the most important failure was one of imagination'. (National Commission 2004:9) As I have explored elsewhere with Phillip Bougen, (Bougen and O'Malley 2009, O'Malley and Bougen 2009), the theme of imagination recurs throughout the report, leading to a general conclusion that 'the possibility was imaginable and imagined'. (National Commission 2004: 344) While acknowledging that imagination is not a gift usually associated with bureaucracies, the Commission argued that 'it is therefore crucial to find a way of routinizing, even bureaucratizing imagination'. (2004: 344) The response is fascinating given that bureaucratization is something that had been ideologically on the nose of neoliberals and neoconservatives for decades. Bureaucracies have come to be regarded in this political environment as anti-entrepreneurial, inflexible and overly hierarchical. Much ink has been spilled on how government can be improved through replacing

bureaucracy with 'government through foresight' which favours competition, market mechanisms, decentralization and entrepreneurialism. In short, what had been promoted widely before the Commission was a government that embraces uncertainty precisely by abandoning its bureaucratic character. (Osborne and Gaebler 1993, du Gay 2000)

Thus it could be argued, at least if one accepts the nostrums of new managerialism and the entrepreneurial state, that any proposal to routinize imagination in bureaucracies is destined to fail. What is more interesting from a theoretical position is the fact that a specific tension is set up, for the claimed advantage of bureaucracies is precisely that they are rule-bound and thus calculable and predictable (Weber 1964). Yet bureaucracy is being set to foster imagining and governing through the incalculable.

Three principal strategies and associated technologies have emerged under this rubric: precaution, preparedness and enactment, and speculative pre-emption. A fourth approach—resilience—(or at least one variant of it) may be understood to have grown up rather to one side of this bureaucratization. To this development the last part of the paper will turn, and suggest it as a response to uncertainty that better than 'bureaucratising imagination'—reflects the neo-liberal vision of entrepreneurial governance.

REVOLUTIONIZING RISK? DATA DERIVATIVES

Yet before we move to consider these 'post risk' techniques, it must be pointed out that risk itself has not remained unchanged in the age of catastrophes. The image of risk relied upon by Beck and others is of a body of knowledge based on

the long term accumulation of data, and resulting probability models that are formed around causal thinking. Mere correlation by itself is not sufficient. Thus Callon et al (2011:206) argue that 'the probabilistic approach requires prior knowledge of the emergent event. It cannot be carried out if the latter has causes and modes of development that are still unknown…or if it appears to rest on causal chains and interactions which are still poorly delimited'. Statistics on individual morbidity and mortality, on marine accidents to shipping and cargoes, on the determinants of building fires and so on, all advanced in this fashion (Lobo-Guerrero 2011). It is with this more or less causal-statistical model in mind that risk-based predictions are understood to fail in the labile environment of the 'age of catastrophes'. Thus with some hazards, statistical-causal modelling fails because is likely to be taken into account by human agents. In this vision terrorism, for example, is so hard to predict because terrorists can figure out likely 'causal' patterns of risk-profiling that would identify them and thus select agents who defy profiles. With other hazards, risk fails precisely because 'causal chains and interactions are still poorly delimited'. In climate science, for example, it is argued that correlations will only be attended to if they make causal sense — so that predictions of global warming can only take root once a theory can be produced to render the phenomena intelligible. As Louise Amoore (2011) has shown, however, new forms of non-causal risk calculus are now widely in operation that resemble speculative trading on financial derivatives. Of course, others (Bougen 2003, Ericson and Doyle 2004) have pointed to the use of speculative 'catastrophe bonds' as a means of insuring 'uninsurable' catastrophic risks. There is an implication that such bonds are based merely on wild speculation – which some may indeed

be. But Amoore identifies something more of a hybrid. 'Data derivatives' are a correlation or 'a score drawn from an amalgam of disaggregated fragments of data, inferred from across the gaps between data and projected onto an array of uncertain futures'. (Amoore 2011: 24). Mobile, algorithm-based association rules are produced of the form 'if *** and ***, in association with ***, then ***'. For example, if ticket is paid in cash, and meal choice is X in association with flight route Y, then investigate further. The question becomes not who are you, but what are you doing here? The algorithm does not lead to a prediction but to another uncertainty, a potentiality: another question. In this way, Amoore argues, it is not collected data that become actionable. Nor are the algorithms themselves stable, nor need they lead to scientifically established causal patterns. They may be ephemeral, only useful for brief periods or until some other question is answered and they are dismissed. It is a form of abstraction 'that is based precisely on an absence, on what is not known, on the very basis of uncertainty' (Amoore 2011:25). This drives pre-emption not by predicting the future but by projecting fragments of data onto possible futures, producing a form of encoded intuition. Significantly, in light of what is to be said about resilience, Amoore is clear that this emerges from the practices of speculative business: from the realms of derivatives trading.

PRECAUTION

As many have noted (Ewald 2002, Fisher 2007) one response to the emergence of the risk society and radical uncertainty has been the elevated resort to the precautionary principal, already widely deployed in Europe for example with respect

to issues concerning global warming and genetically modified foods. In its most conservative form, this intensifies the negativity and paranoia of risk, for at its heart is a decision to cease and desist activities that generate high consequence hazards which are not precisely calculable. As Ewald (2002:287) sees it

> the precautionary principle invites one to consider the worst hypothesis (defined as the serious and irreversible consequence')..I must, out of precaution, imagine the worst possible, the consequence that an infinitely deceptive malicious demon could have slipped into an apparently innocent exercise.

This is a specific formulation in which imagining the worst is pivotal. It is, as he (2002:288) suggests not just inviting one 'to take into account doubtful hypotheses and simple suspicions' but even 'to take the most far-fetched forecasts seriously, predictions by prophets, whether true or false'. There are, as will be seen, various ways of responding to such 'invitations'. However, because—in this interpretation—it takes the worst case scenario as its subject, precaution requires the curtailing or cessation of action. Significantly, Ewald (2002:299) himself points out one consequence is that the 'spirit of enterprise, of creation, and of innovation' are no longer valued and promoted.

There are significant doubts about the extent to which this has been the case in practice. Ewald is adopting an extreme view of precaution, albeit one shared by other influential commentators (e.g. Sunstein 2005). In practice, precaution may stimulate research into the problematic effects of questionable developments, and in addition has opened up dialogues

between democratic politics, science and business rather than closing down development by political fiat. (Fisher 2007)[4] Thus the European Commission has defined precaution as a 'reasoned and structured framework of action enabling scientific uncertainty to be remedied'.(European Commission 2000). Whether we accept the extreme interpretation or not, in precaution it could be said that two core elements are precisely as mapped by Ewald: the deployment of imagination and its coupling with possibility of harms that cannot be tolerated. The resultant is something not clearly articulated in much of the precaution literature – for it shares with risk a fundamentally preventive logic. It assumes that prevention is possible. Where it differs from the data derivatives discussed by Amoore is therefore not in that it requires certainty or causal models to be established. It requires action 'even before a causal link has been established by absolutely clear scientific evidence' (1987 Declaration of the international conference on the protection of the North Sea, quoted in Callon et al 2011:207). Rather it is that it does not work statistically: it does not require a correlation to be identified—only to be imagined. Thus even if we move beyond the extreme version of precaution discussed by Beck and Ewald, it remains the response par excellence of the risk society. It is a program of 'freedom from': there is no agenda of positive freedom per se, only one of removing some of 'freedom'—by closing down enterprise and discovery—in order to protect what is imagined as more important. It is, of course, the classic Hobbesian response of 'security' interventions translated into a world of only imaginable futures. (Sunstein 2005)

PREPAREDNESS AND ENACTMENT

The second major direction taken in the past decade — similarly negative — has been to assume that we cannot prevent catastrophes befalling us, even by retreatist strategies such as precaution, and had better get ready for the worst. Collier and Lakoff (2008:11) have argued that this is a defining characteristic of 'preparedness' which has emerged as a federally institutionalised response post 9/11. By preparedness they mean 'a form of planning for unpredictable but catastrophic events... the aim of such planning is not to prevent these events from happening, but rather to manage their consequences'. Collier (2008) outlines enactment in detail, focusing on the role of expert reflection and the ways in which it is deployed to imagine catastrophic futures.

> Rather than drawing on an archive of past events, enactment uses as its basic data an *inventory* of past elements at risk, information about the *vulnerability* of these elements and a model of the threat itself – the *event* model. And rather than using statistical analysis, enactment 'acts out' uncertain future threats by juxtaposing these various forms of data.' (Collier 2008:226)

This owes much to war-gaming as practiced in military circles for many years. In the simplest model, this may involve imagining scenarios and placing multiple transparent overlays on maps in order to simulate these, with the aim of giving emergency service planners a foundation on which to prepare. Recently, more sophisticated models have been developed, for example by Grossi and Kunreuther (2000) in which hazard, inventory, vulnerability and loss are deployed through the development of computer modelling based on analogous past

events, rather than accumulated statistical data. With terrorism risk, for example, estimation of the timing and nature of the threat is 'elicited' from experts. (cf. Ericson and Doyle 2004:150-51) While 'elicitation' is no more than expert-informed guesswork, as Collier points out, the use of analogous models of natural disasters, military damage assessments and nuclear reactor failures likely provide reasonable approximations to imaginable harms terrorism will produce. (Collier 2008:242) Similar modelling is used, for example, with respect to providing foundations for terrorism insurance — despite Beck's assertion that this is an 'uninsurable' risk. (Bougen 2003)

No matter how sophisticated the modelling, the overriding characteristic of enactment-preparedness remains passive, defensive and negative, the attempt to create 'freedom from'. As with precaution, the spirit of innovation and enterprise is stifled, but this is not a totally inescapable consequence of bureaucratising imagination, as may be seen in the case of speculative pre-emption

SPECULATIVE PRE-EMPTION

There is nothing new about pre-emptive strikes as such. However, it is an important development for several reasons. First, it is generated in an environment in which the precautionary principle had become well established but, as the National security Strategy makes quite explicit, it offers a radical departure from the mind set mapped out by Ewald.

The greater the threat, the greater is the risk of inaction — and the more compelling the case for taking anticipatory action to defend ourselves, *even if uncer-*

tainty remains as to the time and place of the enemy's attack. To forestall or prevent such hostile acts by our adversaries, the United States will, if necessary, act pre-emptively. (National security Council 2002 quoted by Cooper 2006)

Speculative pre-emption relies precisely on high uncertainty for its rationale and this is argued to differentiate it from historical precursors. Previously, pre-emptive strikes would be founded on clear evidence that an attack was imminent. In 'the risk society', however, high uncertainty has become a justification in its own right. Cooper (2006:125-7) has gone further to argue that the logic of post-9/11 speculative pre-emption – to intervene in emergence precisely because of uncertainty linked to massive consequences – is being extended to such other fields as climate change and genetic engineering. In such areas its proponents advocate that 'we make an attempt to unleash transformative events on a biospheric scale before we get dragged away by nature's own acts of emergence'. (Cooper 2006:126)

Cooper's analysis is particularly significant because it also brings to the fore the nexus between speculative pre-emption and parallel radical shifts in the business domain. For Cooper, the genealogy of speculative pre-emption is founded in the shift toward the spectacular rethinking of capital during the neo-liberal years leading up to the turn of the 21st century. In the economic domain, 'it seemed that speculation itself had become the driving force behind unprecedented levels of innovation, allowing whole industries to be financed on the mere hope of future profits. (2006:127) It was, as Cooper rightly

observes, an era in which the imaginary of venture capitalism institutionalised a new model of economic activity.

I will return to this image of venture capital later in the piece, for it recurs in the development of another — and perhaps the most significant — 'post risk' strategy. But for Cooper, there is another genealogical step to take. The bursting of the dotcom bubble, reinforced later by the global financial crisis, shifted the entrepreneurial ideal on its axis. The neoliberal optimism in which the uncertain future was to be hailed and grasped as an opportunity for profit now came to be recast into a fear of uncertainty. The neoconservatives, she suggests, 'want to convince us that there is no end to danger'. After 9/11, this became the predominant vision that shaped warfare. Speculative pre-emption, she suggests needs to be understood in the nexus between military security, the politics of life, and new forms of speculative capitalization'. (Cooper 2006:128-29)

This is a telling argument. However, just as precaution was not the only 'logical' response to high uncertainty, so speculative pre-emption is not the only strategy that emerged from this triangle of the military, venture capitalism and 'the politics of life' — nor is it necessarily the most transformative one. The politics of the New Right, if we can still use this term in the 21st century, have long been unstable and contradictory, a legacy of the wedding of neo-conservatism and neo-liberalism in the Thatcher-Reagan years. (O'Malley 1999) Consequently, there has been not only a trend toward defensive neo-conservatism but an ongoing contestation between allied and overlapping doctrines that have respectively valorised social and prudential authoritarianism and a more radically laissez faire 'social' entrepreneurialism. Thus while I accept Cooper's gen-

eral argument, I want to suggest that there has been no succession of strategies, but rather a situation in which both strands continue to have an influence — in business and the military as in politics.

Speculative pre-emption shares with enactment a vision of an open and unformed future that nevertheless can be dealt with *as if* it were known. Intervention in Iraq went forward not simply on the imagined possibility of WMDs but on the assumption that 'we' could not take the chance of waiting to make sure. The resulting action, however, took the form of a vision of certainty — the invasion operated as if the WMDs existed; its form and operation would have been little different regardless of whether they proved to exist or, as turned out, to the contrary.

Enactment faces a problem that pre-emption evades, for if pre-emption operates as if there is certainty and obliterates the other uncertain futures by creating its own, the persistent doubt about which of the many imaginable futures is the most likely always haunts preparedness. If, as has been seen, the bureaucratisation of imagination demands that all imaginable futures be taken seriously, how do we proceed? Not all such imaginary threats can be rendered the subject of preparation. Of course, various techniques such as expert elicitation are used to select more likely imaginable futures. But that is precisely the trap that the bureaucratization of imagination sets. If imagination is the limit, then discounting *any* possibilities — such as the possibility of flying fully fuelled long-haul jets into buildings — negates the strategy. It must writhe in its own contradiction. Speculative pre-emption theoretically faces the same dilemma, of course, but by *remaking* the future appears to

evade it. Even so, while 'enterprising' in form, it is still merely reactive, pursuing a negative goal of freedom from which is itself in tension with neo-liberalism's boundless faith in uncertainty and enterprise. This is where resilience comes into play.

RESILIENCE: ENTERPRISING IMAGINATION

As Cooper and Walker (2011:27) suggest, 'with the post-911 revolution in homeland security', resilience has become a universal security perspective'. It integrates a wide array of disaster situations including terrorism, critical infrastructure protection, state failure, natural disasters and climate change within a single mode of analysis. Like other post-911 strategies, resilience is focused on critical events that we 'cannot predict or prevent but adapt to by "building resilience" '. As a consequence of the enormous scope of events to which it is envisaged applying, resilience—like risk—takes on a bewildering variety of forms. But it differs markedly from other strategies in that it does not imagine specific scenarios against which defences (or pre-emptive attacks) must be prepared. Rather, the focus is on building-in a capacity to adapt and survive in the face of *any* situation – a context of high uncertainty imaginable or otherwise. (Lentzos and Rose 2008) More characteristically still, 'resilience is the capacity to adapt and thrive in the face of challenge.' (World Economic Forum 2008:ix)

Note that there is no talk of disaster or catastrophe, nor specification of types of imaginable threat. There are 'challenges', and the aim is not simply recovery from disaster but the capacity to 'thrive'. It is a sea change from the other, ultimately negative and defensive strategies. This characterisation of resilience is diagnostic, for it identifies it precisely with the

entrepreneurial, neo-liberal business models such as were developed in the 1970s for example in Tom Peters (1977) iconic '*Thriving on Chaos*'. Indeed, the parallel with the approaches to business that 'embrace high' uncertainty goes deeper than this. In order to explore this, we need to focus in on one specific field of security and uncertainty in the risk society: the transformation of military affairs.

Within a year of the announcement that imagination was to be bureaucratised, Defense Secretary Rumsfeld effectively summed up a rather different vision associated with a re-formation of the conception of the military and of its personnel along entrepreneurial lines. He urged

> We must transform not only our armed forces but also the Department that serves them by encouraging a culture of creativity and intelligent risk-taking. We must promote a more entrepreneurial approach to developing military capabilities, one that encourages people, all people, to be proactive and not reactive, to behave somewhat less like bureaucrats and more like venture capitalists. (Donald Rumsfeld, 2002)

Since just before the end of the 20th century, the military in the US and other 'western' powers have been radically changing the organisation and mentalities of the military in substantial ways –a the 'revolution in military affairs' (RMA). Broadly speaking, the RMA reflects a view that the nature of warfare has changed. If once there were declared wars and set-piece battles, now warfare may occur at any time and in and through media that little resemble battlefields. 'Battlespaces' may involve contested landscapes, but they may be on the

internet as hackers seek weaknesses in the enemy's defences, or in commerce and banking – anywhere the enemy is vulnerable. Even 'on the ground', armed warfare has shifted from set piece battles to highly mobile and fragmented conflicts. This is regarded as an era of 'asymmetric warfare' where each side plays according to its own rules and seeks weakness wherever it can be made to appear. The result is that 'our missions have become far more complex and our challenges and adversaries less predictable'. (Alberts et al, 2000:60). Warfare and military security have shifted dramatically in the direction of high uncertainty. (Manigart, 2003)

In response to this assessment, the RMA has drawn heavily on the radical models of business restructuring that are associated with the 'new managerial' revolution and neo-liberal visions of the entrepreneurial society. As business is perceived to have shifted toward innovative and highly competitive strategies in the globalized economy, so it has appeared to military leadership that 'in many ways the environment in which the military forces operate does not differ from that of the business environment' (DSTO 2004:4),or as pointed out by the architects of the now pre-eminent 'network centric warfare' model , 'network centric warfare has its antecedent in the dynamics of growth and competition that have emerged in the modern economy'. (Cebrowski and Gartska 1998)

In a nutshell, network centric warfare may be summed up by the idea that networked relationships become more critical to military flexibility, adaptability and multitasking than the traditional vision of 'silos' of military might and firepower. 'Co-evolving' with business, visible changes include simplification of hierarchies, use of smaller and more mobile formations,

and increased autonomy and responsibility of personnel. The 'network centric warrior' is required to a far greater extent to be innovative, flexible and to act as an informed decision maker. (DSTO, 2004) Here resilience emerges as a key to creating new subjects of high uncertainty. In the wake of the destabilisation of the American economy post-9/11, the entrepreneurial ideal did not solely take the negative turn of speculative pre-emption suggested above by Cooper . Among a raft of reformulations was the appearance in business and change management literature of a host of 'self improvement' manuals on how to become resilient. In Brooks and Goldstein's (2006) *The Power of Resilience: Achieving Balance, Confidence, and Personal Strength in Your Life*, the everyday idea of resilience as being able to 'withstand shocks' and 'bounce back' is joined by a more enterprising and positive vision 'that will lead to a more resilient, fulfilling life' (Brooks and Goldstein, 2006:3-4). The same message is developed in Siebert's *The Resiliency Advantage: Master Change, Thrive Under Pressure.* (Siebert, 2005) For some advocates, in still more encompassing fashion, resilience 'is the basic ingredient to happiness and success'. (Reivich and Shatte, 2002:1) In this sense, the constitution of new subjectivities not only is focused on risk and uncertainty as calculative ways of dealing with threats. At least equally it promotes what Baker and Simon (2002) refer to as 'embracing risk': the *positive* attitude that regards high uncertainty as opportunity and challenge.

A principal change ushered in by this new 'resiliency' literature was the argument that resiliency was a mindset or skill that could be learned, rather than a personality or character trait deeply inscribed in the individual. The elements of this

mindset include such 'skills' as "displaying effective communication', 'possessing solid problem-solving and decision-making skills', 'establishing realistic goals and expectation' , 'living a responsible life based on a thoughtful set of values' and 'learning from both success and failure' . (Brooks and Goldstein 2003:3) While such advice is easy to dismiss as the stuff of pop business shelves, it has been formalised by military and security establishments worldwide. The Australian Defence Force has had such a resiliency strategy in place since 2000, the British military and emergency services and the Canadian armed forces all have variations on this in place. (O'Malley 2010) As part of the RMA, the US military now requires that all 1.1 million US troops undergo intensive training in resiliency and that every battalion have a 'master resiliency trainer'(*New York Times* 28.08.2009:18), and more recently the National Guard and Reserve have also begin resiliency training. (Army News Service 2009:2) In sum, the US military assumes that training in resiliency 'teaches self awareness, bringing mental fitness up to the same level as soldiers' physical fitness and creating 'supermen' and 'superwomen'. (Army News Service 2009:2)

The US Army's Fort Bragg program in psychosocial military resilience training focuses on a battery of 'factors' found to reduce stress reactions, and each has a training module:

Positive emotions (optimism and humor); Emotional regulation (fear, anger etc.); Cognitive flexibility (positive explanatory style, positive reappraisal, and acceptance); Coping style (active approach vs. passive/avoidant); Spirituality (including religion); Moral code (including altruism); Social support (including unit support); Training (physical, psychological and

spiritual); Purpose and meaning (mission). (Southwick et al, 2005)

Each factor is broken down into components, each to be a focus of training. For example, 'coping style' involves focusing on an 'active approach' that involves gathering information, acquiring skills, confrontation rather than avoidance, problem solving, seeking social support and cognitive reappraisal (that is, 'redefining a crisis as a challenge') as opposed to blaming. Further, these resiliency training modules—like the business and change management literature—are based in research findings, most especially involving cognitive behavioural therapy. The 'coping style' module, for example, is based on research that shows this skill set was found to produce fewer post traumatic stress disorder symptoms in Gulf War veterans. (O'Malley 2010)

The aim is to produce subjects—whether in business, the military or everyday life—who are capable of dealing with all situations of high uncertainty. In strong contrast to virtually all the other strategies, resiliency thus specifically rejects what Engin Isin (2004) refers to as the 'neurotic subject' he sees as integral to the subjectivity of the risk society. For Isin, the neurotic subject is 'someone who is anxious under stress and increasingly insecure and is asked to manage its neurosis… neurotic because it governs itself through its anxieties, what it wants is impossible. It wants absolute safety.' (Isin 2004:231-32) This, certainly is the subject of Beck's vision of the subjects of risk consciousness, but the new resiliency approach aligns far better with the neo-liberal imaginary of each subject being the 'entrepreneur of oneself' in an environment that is highly

uncertain. This subject, in a sense scientifically designed, approaches uncertainty as a challenge and opportunity.

CONCLUSION: UNCERTAINTY MAKES US FREE

The demand that governments 'bureaucratise imagination' has been met with a series of responses largely revising and developing strategies and techniques inherited from former years . The irony of encouraging the imagination of threats is that whereas risk could at least rein-in paranoia by the demand for statistical evidence, now as Ewald argued, evidence is hardly a requirement—if threats can be imagined then they could happen and we should be prepared ,or strike first at any imagined source of threat. In all of these approaches, there is a specific kind of freedom being produced, what Isaiah Berlin referred to negatively as 'freedom from', associated with what Beck (1992) saw as 'paranoia, and Isin (2004) as 'neurosis'. Uncertainty appears as a problem for life itself and the command to bureaucratise imagination intensified this.

But from the 1970s, political and economic 'security' had begun to diverge as exposure to uncertainty and insecurity in the economic domain were defined by neoliberals as beneficial and essential to freedom and security. The less the security, the greater the freedom. Increased uncertainty now came to mean increased opportunity for the enterprising. Neo-liberals such as Peter Bernstein (1998) argued that 'uncertainty makes us free'. If the future is predictable, the argument goes, then how can we be free? How could such a vision survive 9/11? How could uncertainty be sustained as a liberal condition of freedom when it had become the enemy of Western, liberal security? The answer was not to be found in bureaucratizing imagination.

Nor as events are proving, was it to be found in speculative pre-emption, even though that preserved something of the enterprising mythology. Not through the search for solutions to every imaginable threat, but by creating new, resilient, subjects scientifically designed to 'thrive' on chaos and make every threat a challenge and opportunity. Thus, in the mythology of resilience, may the neo-liberal dream of freedom in uncertainty be imagined into existence in the 21st century.

From such a viewpoint, there is perhaps nothing particularly dark about this vision or its technologies for changing us. After all, it could be argued instilling people with techniques for optimism, resourcefulness, enterprise and social networking is no bad thing. Nor is it more objectionable than any of the other programs in the past that have tried to make better subjects of us. And at least this does not project a narrow band of repressive moral imperatives, as is true for many political, religious and aesthetic regimes of the past and present. Yet, as Dillon and Roberts (2009:138-40) have argued, there is a very dark side to this. They note that resilience is part of a program to provide security to critical infrastructures since 9/11. Appearing as a reinvestment in 'human factors engineering' that can be traced back to the Second World War. Citing the 2004 US *National Plan for Research and Development in Support of Critical Infrastructures* (National Plan 2004), , they point out that resilience is part of a program to harness the 'cognitive, emotional and social capabilities of the human' to defence ends.

> Human life, in this context of the War on Terror, is valued merely in terms of its utilities for the protection of the physical and technological infrastructures on

which the liberal regimes depend for their security. The advance of such strategies and their application to population operates by reducing life to a logistical calculus of value on account of its capacities to enhance infrastructure. (Dillon and Roberts 2009:139)

Even to the extent that this is true, the development of resilience programs in the business and 'lifestyle' sectors suggest that this is no more than one tendency or application. As has been seen, there is no secret about the military programs for researching and applying resiliency techniques to troops, but equally it is clear that such techniques—even accepting the unlikely hypothesis that they emerge solely from such defensive ends—have escaped into everyday life, and put to work in 'enhancing' life itself. As such, they may represent a 'line of flight' whose future trajectory is unknown, about which –we should be cautious rather than negative; especially if indeed we do live in an age of catastrophes.

NOTES

1 This paper is being co-published as "From risks to resiliency. Resilient subjects in the age of catastrophes," in the Oñati Socio-Legal Series (Oñati: International Institute for the Sociology of Law).

2 Like most social scientists unfamiliar with the actual workings of insurance, Beck assumes that it relies totally on actuarial method – the application of the laws of large numbers to extensive volumes of archival data in order to generate precise probabilistic predictions. While this is a preferred approach in many areas, such as life insurance and fire insurance, as Ericson and Doyle (2004) have shown, it is frequently not the case that insurance proceeds in this fashion, for example where small or localised markets for insurance are created. Such, often highly profitable, markets may exist even with respect to contemporary life insurance. Moreover, as O'Malley and his colleagues have shown (O'Malley and Hutchinson 2007, O'Malley and Roberts 2012) even such major fields as fire insurance operated profitably and with considerable stability well into the 20th century without actuarial tables. Even where actuarial models do exist, it is clear that actuaries rely on them only as a guide to business decisions rather than as a rigid determinant of insurance practice (Porter 1995, Ericson and Doyle 2004).

3 Of course such subjectifications existed and were prominent even in the 19th century. But overwhelmingly these were understood to be the preserve of wealthy white men: the explorer, the enterprising capitalist, mountaineers and big-game hunters. Important as they were, there was never an expectation that the masses would adopt such subjectifications, for to do so would be to risk becoming a burden on the community in the event of failure or injury.(O'Malley 2004).

4 Michel Callon and his colleagues (Callon et al 2011) have argued strongly against identifying precaution as being tied to the worst case scenario. In this light precaution would only lead to 'an impasse in decision making'. Rather they suggest that the worst case scenario forms a limit case in precaution, which only requires that all hypotheses, even the most marginal, have to be considered. It is perhaps a moot point whether Ewald can be interpreted as promoting this view, or the 'extreme' view. Certainly it is the 'extreme view that gets the most emphasis in his work. Callon et al (2011:200) must think Ewald's position more moderate, since they

suggest that the extreme view is a journalist's fiction that 'does not appear in any referenced text.'

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