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Getting over Architecture: Thinking, Surmounting and Redirecting*

The more original the thinking, the richer will be what is unthought in it. The unthought is the greatest gift that thinking can bestow. (Martin Heidegger)

What now follows is not only an invitation to think the unthought but to think what, for some architects, will be a thinking of the unthinkable. Of course, the term 'thinking' trips off the tongue lightly, but this ease deceives. In actuality, there is a huge gulf between the evocation to think or the declaration that it is taking place, and any actual act of contemplative critical reflection. The unthinkable as architecture as we know it has to end, if we, and all we depend upon, are to survive and flourish.

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Increasingly, it appears that the way modernising humanity has made 'its world within the world' will end in absolute homelessness. There is no name for this defuturing condition; no recognition of what has been unmade by what human artifice has made. Whenever we create we also destroy: the 'dialectic of sustainment' is one way of naming this. Without this being recognised, we cannot take responsibility for what we do. So framed, the unsustainable is not just something we create, it is something we are.

Notwithstanding the limits of language and our categories of thought, deeply embedded as they are in another age (the Enlightenment), a sense of the inadequacy of how we understand 'our' moment (albeit in difference) is now emergent. The problems we face are beyond the reach of reason. As finite beings with an uncertain finitude, we are finding the realm of calculation and the exercise of technics are unable to deal with defuturing forces unwittingly liberated by 'our' anthropocentric actions. There is no way to engineer us out of that negation that unsustainability names and defuturing delivers. Reason and technology just cannot transform what we have technologically become and the way our actions take *our* time away.

The challenge is ontological rather than metaphysical: it is a matter of changing what we are rather than just what we know and think. Knowledge and thought here become a means not an end. Thus, in this chapter, the approach to be adopted on how knowledge is constituted and applied will not be framed within a disciplinary or trans-disciplinary context. Instead, it will be explored within a post-disciplinary, relational and strategic formation.

To confront the world within the world as a conceit, to recognise ourselves as unsustainable and to

grasp the imperative of our own transformation – all of this profoundly transforms the agendas of architecture and design (and of almost all other areas of knowledge and practice). In the shadow cast by this daunting backdrop we will ask and try to answer two questions. The first is: 'how can the moment in which we collectively find ourselves be appropriately understood?' The presumption here is when such a question is asked, the attempt to answer it is usually circumstantially based rather than historical. The second question is conditional on giving a developed answer to the first. It asks: 'what kind of knowledge are we able to create and deploy to understand our situation and how can its creation inform our actions, including our need for self-transformation?'

The collective moment, the unsustainable and the practice of architecture

It is contended that in a condition of almost total unawareness, we, that is all of humanity, are living at the dawn of the age of unsettlement. For tens of thousands of years, our distant ancestors were non-settled – they were nomadic. For the past ten to twelve thousand years, human beings have increasingly become settled and urban. Over the next two centuries, this condition is very likely to change as a variety of factors combine. Many coastal dwellers will be forced to move due to projected sea level rises (at the March 2009 meeting in Copenhagen, the Intergovernmental Panel on Climate Change estimated that as many as 600 million people could lose their homes[1]). 750 million people are expected to lose their main source of fresh water as the glaciers of the Himalayas disappear (which they are expected to do by 2035[2]). Heat islanding (rendering some cities unliveable), droughts, riverine floods, cyclones and other extreme weather events are equally expected to create hundreds of millions of 'environmental refugees.' It is perfectly possible that by the end of this century, a tenth of humanity will be displaced. But the problem does not stop there. As military strategic planners around the world are pointing out, having tens, or even hundreds, of millions of displaced people crossing borders could trigger massive conflicts. In his book *Climate Wars*, Gwynne Dyer outlines a horrendous scenario of nuclear conflict as vast numbers of people from Southern China cross over into northern Russia.[3] More specifically and immediately in my own region, the most recent Australian Government White Paper on Defence considers that social insatiability in the Indonesian archipelago due to climate change factors will impact on the nation from 2030 onward – which is perhaps one of the reasons why the size of Australia's navy is being increased.[4] Additionally, continued world population growth, global expansion of consumerism and demands on natural resources (especially food) will constitute another problem of enormous proportions. Even if food can be produced in sufficient volume, it is likely to be increasingly expensive – which is already the reason why the 1.02 billion people (the UN FAO figure) 'living' on one to two dollars a day go hungry.

What is coming towards us will radically change the human condition. The relative climatic stability of the last ten thousand years is at an end. No matter what is done now to mitigate greenhouse gas emissions, the zone of the unknown is in front of us. Perhaps the more rigorous the action taken, the lower the risk, but in a system only partially understood, this is not certain. What is clear is: greenhouse gases have an atmospheric life of 200 years plus; sea levels will go on rising for 300 to 400 years; and deep ocean temperatures (the planet's thermostat) take around 200 years to

there are dramatic climatic changes one can expect equally dramatic cultural consequences, and the end of human settlement as we know it could be one of them.

Whatever happens it will affect everyone. The human psyche will change. Insecurity will be a far more overt ontology. Mobility will be a generalised reaction to actual and possible dangers of many kinds. Many people will die. If such things happen, the significance of place and 'community' will radically change. Certainly, the challenges to architecture are already moving far beyond the agenda of designing 'green' buildings.

There is the possibility that things will not go as badly as outlined, although signs indicate the reverse. Rajendra Pachauri, Chairman of the Intergovernmental Panel on Climate Change has indicated that the impacts of climate change are turning out to be much worse than what we had anticipated earlier.[5]

Here then is the situation that we need to start to try to understand. Obviously it's a fluid picture that will only become clear as events unfold. Action thus will have to be adjusted accordingly. Framed by this context and a concern with architecture, we can now move on to ask 'what kind of knowledge are we able to create and deploy in this situation and how can its creation inform our actions, including our self-transformation?'

ARCHITECTURE NOW AND THEN
Architecture (including sustainable architecture) will be characterised here as complacent, and dominantly, sustaining the unsustainable.

It is complacent because it continues to project forward the integrity of its discourse and the agency of architects. There is a retained assumption that (i) it is merited and appropriate for architecture to be a discrete practice that creates a specific category of objects; and (ii) that it is sufficient for architects to stay within a model of practice-based service provision and aesthetic gate-keeping of the form of the built environment. Such attachments mean that the architectural profession privileges the protection of its professional status rather than adapting to new, pressing needs that would challenge architects, requiring them to redirect how they think, what they do and what they know.

To illustrate the point, consider an architect receiving a commission to design a 'green building' for a corporation. S/he will likely design the structure taking account of site factors, orientation, passive solar issues, the environmental impacts of materials used, material recycling, the use of renewable energy technologies, solid and liquid waste management, water conservation, design for disassembly and building reuse, etc. The structure will then be built according to this design approach, it will be rated according to one of the many hundreds of environmental rating systems and thereafter claimed as sustainable. But unless what actually occurs within this building and the actual activities of the organisation that it houses significantly advance sustainment, claims to sustainability are all but meaningless.

Metaphorically, such activity reduces architecture to the professional production of 'the curate's egg' – that not all the egg is bad in no way prevents it being deemed a bad egg. Of course, when presenting these arguments to an architect the response is nearly always: 'but as a service provider I have no power over what my client does'. This kind of response reveals limitations that travel in two directions. It folds into the fact that most of the key design decisions are made even before the architect comes on the scene (like, for instance, the building's location, scale, use and required symbolic status). But even more significant, such a response exposes the architect as having made a choice – one based on remaining attached to the practice as it is rather than redirecting it (and by implication their own role) towards sustainment. As we shall see later, sustainment is something beyond what is currently signified by the term 'sustainability'.

The position adopted here asserts the need for the dissolution and reformation of architecture in the service of sustainment. Such change will not arrive via theoretically inflected critique somehow sparking an idealised moment of lifting a veil to reveal truth and thereby instantly transforming practice. In contrast, what will be advocated is the instigation of a process of informed and unstoppable practical redirective change able to reconfigure what architecture is and does.

Sustainability sustaining the unsustainable
As a pragmatic, sustainability continues to be mobilised without critical reflection. The example just given on the relation between a building and the activity of the organisation that occupies it, is one example. The more fundamental point is that the ability to sustain depends upon relational interactions (an ecology in, and beyond, a biological sense). Ability, then, carries two connotations. First is the demonstration of an ability to think and design relationally; and second is the capability of positing what has been designed to function completely relationally within its particular environmental setting and use.

Such thinking, and its application, can only occur by following a trans-disciplinary pathway to the production of relational knowledge – which is to say creating a form of knowledge that ends-up dissolving disciplinary difference in the course of forming something new.

Emanating from the Enlightenment, modern knowledge was predicated upon divisions (first, between philosophy and science and thereafter, within each domain). As this process continued unceasingly, specialisms proliferated and relational connections became overlooked, obscured or totally erased. So while a great deal has been learnt, much has been forgotten. Likewise, and out of the same process, calculative reason has come to dominate. This has made instrumentalism hegemonic – hence the omnipresence of technology and the reduction of 'sustainability' to technics.

In such a setting, to go forward thus partly means going back, not just to potentially recover forgotten knowledge but to gain a better understanding of the inappropriateness of the structuring of much of the knowledge we have collectively inherited. We equally need to consider that to a very significant extent, we strive to make sense of the contemporary world through

very different material circumstances, there can be a significant gap between the way of thinking and what needs to be thought.[6] At the same time, going forward equally demands the creation of new knowledge – and this imperative is essential to place at the very core of sustainment.

Unquestionably, in this setting there is a need to confront the unthinking of our thinking. We simply cannot take how we think for granted, or just 'bolt' disciplines together. Our conceptual geometry has to be exposed. This means getting to the foundations of the way we think and grasping its directional force. By so doing, it becomes possible to gain an understanding of the underlying structuring of the structures of our practices.[7] More specifically, reflective practice can no longer just be a reflection upon what has been done, or even why. It has to be projective – it has to be a reflection upon the consequences of what the practice brings into being.

In sum, our aim is to become new practitioners with new knowledge and practices that can have far greater futuring capability than what architecture and urban design currently offer in their disciplinary confinement. The key to making this possible is the creation of a condition of 'situated learning' by making a conceptual leap – into a context derived from an analysis of those contemporary critical conditions within which design is implicated. It is no longer a matter of bringing a discipline or even a variety of disciplines to the problem, but rather of continually learning anew what the situated problem, once adequately defined relationally, demands to be learnt. Problems are thus never received, but always interrogated and redefined. Likewise, the practice never prefigures the form of the solution – hereafter, architecture never just begets architecture.

Technics and Design After the Subject (designer)
The material condition of designing anything now is the ongoing 'designing of the designed' framed by the dialectic of sustainment. In other words, designing is enacted in conditions of creation or destruction produced by what has already been designed. We are directed by the discourse of design to become partly (only partly) aware of what design brings into being. But dominantly, we lack consciousness of what design destroys. In so many ways, world of our creation, as it spreads globally, stands literally and metaphorically on a wasteland.

As epitomised by the architectural façade, so much of what is designed is concealed by its mode of revealing.

By far the most powerful force of design is ontological – all power posited with the agency of the designer is illusory. Dominantly and phenomenologically, designing occurs without knowledge or consciousness. The implication is challenging: designers of every ilk have to learn how to 'design the designing of the designed'. This means that ontological design needs to seen and established as a common foundation of all design practices.

The designing of the designed can be understood in two ways: first, as unambiguously exemplified by architecture, that most of what is designed is a repetition (a continual designing of what has

already been designed); and second, that our 'our being-in-the-world' (including our practices) comes to be designed as part of the ongoing designing of the designed.

Technics enfolds design, and is design (as well as being technology, techno-science and the culture of technology – this as each of these forms of technics/design ontologically designs things and complexity). What this means is that technics goes ahead of us as a condition that prefigures the designing of the environment that design how we act. In so doing a great deal of what we design (and increasingly how) is over-determined.[8] As design designing, technics puts the future in front of us. In relation to such a given context, to set out to deliberately conceptualise forms of the future requires contesting how they are already prefigured. So understood, the designer is neither at the start of nor at the end point of design – s/he arrives in design (the designed and designing environment) with, although usually without, a predisposition to think the future. Such a shortcoming should not to be seen so much as the limitation of an individual, but as a criticism how the subject position of 'designer' is created (educationally and via induction into professional practice).

In the light of these comments it is not a matter of just gaining more productivist, complex and trans-disciplinary knowledge of design itself, or even of how to inquire into the nature of design and the designed. Rather three connected and pressing demands to acquire knowledge are upon us.

(i) We need to grasp the implications of ontological design and respond to them. This goes beyond investigating the ways in which the designed goes on designing, to realise that what design designs, in the end and fundamentally, is us. While it's true that human beings have extended themselves prosthetically by the use of tools from time immemorial (and by what tools have been used to create) it is also the case that tools and what they have been used to create have acted back on their creators. The ancient toolmakers were shaped in body and mind by their tools. Now, the contemporary worker in numerous occupations is being physically and mentally changed by technologies that extend their central nervous system and hold them in place, compliant before a screen.[9] Such holding in place is not merely the active function of, for example, the work station in relation to screen content, for it is also delivered by a mode of cognition whereby a worker has learnt to become technological, metaphysically. For example, increasingly, technologies based on artificial intelligence act to structure modes of thought and action based upon mechanised and algorithmic instructions.

(ii) We need to understand that what architecture brings to hand constitutes part of the 'world within the world' that undermines our fundamental dwelling in the world. Rather than architecture being elemental to the kind of actions that resolve homelessness – it produces it in the long term. This by replicating (even in the name of 'green architecture') so much in the city that is unsustainable. Moreover, architecture and urban design represent a forgetting of what needs to be designed by their preoccupation with designing (for) itself. Effectively, the means (the designed) is taken to be an end. Architecture and urban environments are designing agents of worldly

engagement and transformation. This agency cannot be reduced to the functions that architecture dominantly serves because it exists in a much wider register of being, dwelling and action.

(iii) We need to realise that technics, and thus all design practices, have become implicated in extending the industrialisation of memory.[10] Effectively what this mean is memory being made a performative feature of technology and managed as information. Memory is no longer simply a quality of mind: it is elemental to a system in which we are just one agent. In fact as Stiegler argues, technics does not aid memory: it is memory.[11] Now of course memory cannot be appealed to as a self-evident phenomenon – its forms are multiple and complex. So said, all things we bring into being by design embody memory – every building is designed from the memory of the practices of building construction. It arrives via what is remembered in an industrialised form (information and instruction) that gets posited in the building's materiality as that which can be read. According to Stiegler, technics are a compound of the remembered. But at the same time, more recent technologies of memory have radically altered the ratio of embodied to disembodied memory. As disembodied memory has become increasingly relied upon, the human capacity to remember has diminished. This has not happened in isolation, but at the same time as a major loss of historical consciousness and thus historical knowledge. Central to this loss is 'bit culture', which is a loss of narrative, and so of telling – it creates a culture of the forgotten and marks a means of forgetting. Narrative it should be understood is a key means by which ideas and knowledge travels – it orders and animates what is said (and thus is not a mere delivery of information. Narrative it is elemental to an ecology of mind – it depends on the narrator, understanding and an audience A loss of the ability to narrativise places the future of mind (as a product of, and contributor to, the collective) at stake.[12]

Memory is being objectified by design, as design is employed to create the technology of its embodiment and synthesis.[13] In this state of reification memory (as information/data) is selected, edited, assembled and turned into a commodity to buy and sell. So as it is managed within such an industrialising process it is stripped of critical reflective capability.[14] The past is lost. Stored data, no matter it use, cannot substitute for historical consciousness narrativised. As George Orwell put it in *Nineteen Eighty-Four*: 'who controls the past controls the future, who control the present controls the past.' Not only is memory a profoundly political entity, but contesting its form and ownership is a crucial and pressing political issue. This is not least because as memory is transformed so are we – thus when memory is externalised and reified (as with technics in and as built environment) the ontological designing of ourselves and our futures (in our difference) is equally transformed.

As should now be clear, the future is in danger by design. So constituted, the future itself becomes danger and thus a negation of itself.[15]

REDESIGNING THE SELF, THE PRACTICE AND ITS PRO-DUCT
The kind of analysis outlined above, indicating on the one hand, escalating negative consequences of human settlement and on the other, the limitations of existing forms of design thinking and

architectural practice to deal with them, is prompting some to find another direction. One naming of this is 'redirective practice'.

Redirective practice aims to redirect what a designing subject is, knows and does.

Gradually redirective practice is starting to be introduced into the curricula of design and architecture schools in Australia, the USA and a few other countries. Likewise, it is also starting to be adopted by a variety of professional design practices. While still at a path-finding stage, it is clearly being realised that it will become possible to combine redirective action with the development of economically viable futuring activity. As will be shown, there are indications of its potential as a transformative force – both as a way of thinking and as the basis of an ontological and metaphysical repositioning of architectural practice in relation to other design domains. Redirective practice has the potential to be the keystone of sustainment.

This repositioning can be understood in terms of two transitory, transformative moments, which together combine to produce a fundamental shift in what it is to be an architect/designer.

Moment One is the rupturing of the metaphysical linkage between the architect and architecture (or any other kind of design practitioner and the designed). This is to say that what occurs in this moment delegitimises that knowledge that tells an architect *what to do* to realise a particular architectural end, and in so doing, defines those actions which create *a sense of self* as architect.

Moment Two carries the critique embedded in Moment One to the formulation of another kind of thinking. This thinking reveals the imperative of redirecting what all designing practices currently do, accompanied by an indication of what they actually now need to do.

Moment One is effectively an ontological unmaking, while Moment Two is an ontological remaking. These moments are however transitory in that they mark, and enable, the passage of one ontology (i.e. that of the architect) to another (that of the redirective practitioner). Once redirective practice is normative, the need for the transformative process clearly falls away. Likewise, once the redirected itself becomes the norm, the necessity of redirection fades and another designing ontology, yet to come into being, arrives.

Central to Moment Two is a shift in understanding what design brings into being and its nature. Rather than seeing the objective as bringing completed operative aesthetico-functional objects into a particular spatial environment, the intent is to subordinate whatever is created to the primary intent of making time. In other words, object, function and use are replaced by temporality and process – thus 'the (end) product' of designing now becomes 'pro-duct' (a (pro)forward-(duct)connection).[16] The critique underpinning this move – the taking of design toward 'futuring' – comes from recognising the implication of design practices (obviously, including architecture and urban design) in 'defuturing.'[17] The future has, and is being negated by design. Design practices have been complicit in speeding the rate of production, which is indivisible from the acceleration of destruction. This process, named as the 'dialectic of sustainment,' is

inescapable – as already said, creation cannot occur without destruction. But what can be controlled is what is actually destroyed and the rate of its destruction. In this context, decision-making can be seen as ethics materialised. If what is destroyed is systemically harmful, or can be replaced/renewed in volumes, then there may be no problem. Conversely if it is life-giving, vital and finite, then destruction equals disaster.

Although the 'dialectic of sustainment' is an obvious feature of our making a 'world within the world' it has mostly gone unseen and unconfronted – 'our' anthropocentrically driven self-interests have deflected what we can (easily) observe and have concealed the seemingly obvious. Unsurprisingly, such thinking, including the notion of ethics materialised, has a primary critical focus within redirective practice. It may be that we can never be absolutely certain about what we really create or destroy, nonetheless the choice has to be faced and a decision made.

Clearly there are issues of how an architect, or any other designer, comes to engage with the ideas, issues and observations made here. As indicated, they could arrive via educational means (tertiary and professional) – not to supplement existing knowledge but to replace it. This is not to say all past knowledge would be erased or repressed. Rather some would be revised, while much would be 'archived' and thus would no longer taken as a model for the creation of built and cultural environments.

Certainly, while redirective practice needs to arrive via institutional design and architectural education, its most significant realisation is likely to come through 'situated learning'. What this means is that the imperative to redirect (which will often end up as unavoidable) will become a driving force whereby what has been formally learnt becomes existentially known. Effectively: the concept of redirection, the unavoidable need for it, and the situation to be redirected would all merge to produce ontological designing. Thereafter, this mode of designing would become simply how things are and the way they are done.

POST-DISCIPLINARY THOUGHT & REDIRECTIVE ACTION: THREE EXAMPLES
Now let's replay what's been argued in the abstract through three very different domains that beg redirection. The first is the redirection of existing cities; the second addresses the redirection of urban populations and how cities are brought into existence; and the third example goes to what we know.

Metrofitting[18]
Metrofitting names a comprehensive relational approach to retrofitting much of the material, immaterial and social fabric of the city. As such, it provides a conceptual and organisational approach to policy-making, planning and design practices spanning the concerns of government, industry and communities. The intent of metrofitting is to prefiguratively and preventively take responsibility for the immediate and coming situation. The cost of such action will be significant, but compared with allowing climate impacts to occur without doing anything this cost would be

accepting the prospect of crisis and thus relying on crisis management to deal with it, and at worst, a fatalistic capitulation to urban breakdown.

So contextualised, metrofitting is a strategic approach for putting a city in a position to adapt to climate change and associated impacts. It is also about prompting recognition that means have to be created to enable the existing urban social ecology (how decisions are made and how social relations are established, maintained and revitalised) to change. Moreover, metrofitting is equally about: the transformation of the city's economy (with a bias toward localisation and improving the sustainment performance of industries, products and services); how social justice, equity and cultural sustainment are secured; and how prefigured crises are managed (like, for instance, a large influx of environmental refugees). But above all, it is about how we live and work together to secure a viable future.

Methodologically, metrofitting starts with a comprehensive analysis of the city and its threats – such information being used to create a continually reviewed risk map. An absolutely crucial point about metrofitting is that it is not a defensive exercise of seeking to secure a city 'as is', with its existing economy and modes of habitation. The content of metrofitting cannot be reduced to a pragmatic, physical engagement with the city and instrumental planning. It has to be significantly informed and directed by an act of imagining what a metrofitted city might be like. For this to happen, narrative and image have to be created, linked to a critical approach, and able to inform detailed planning and co-ordinated, well-executed designed action in space *and* time. Essentially, imagining what needs to be done should be prompted by an illustrated story of what might be possible.[19]

The metrofitting agenda is large. Besides 'risk mapping' it spans actions like: critique of existing utilities for energy, water, waste management and transport; assessment of the quality of the built fabric (and its ability to withstand extreme weather impacts); urban food production; the nature of the working day; fire risk and prevention; climate adaptive dress; educational reform (at every level); urban signage and public information; and demographic change (including the arrival of 'environmental refugees' and 'internally displaced people'). Of course, also part of the metrofitting agenda are professional development programs on redirective practice, based on situated learning, for a whole cohort of architects, designers and planners in the public and private sectors (including industry).

Moving Cities
There are some cities that will be able to be transformed in coming decades, but there will be a large number with no future. Cities that will be inundated with flood waters, become too hot to be inhabited (because their thermal mass cannot be cooled), cities that will burn or be deprived of a water supply. And then there will be cities that find themselves in the path of conflict on such a scale that they become depopulated by fear or acts of destruction.

Such prospects are not mere fictions. Isolated examples already exist: Dhaka is at risk from rising

lose its water supply. As for fear, there are already millions of refugees in the world who have abandoned their home and cities in the face of actual or impending conflict.

That most of the events contemplated *might* be several, or many decades away, is no argument against the need to start planning now. Obviously such planning should not only be directed at the city as built environment. The issues of how a city's economy, culture(s) and community structures can be gathered then moved or reanimated in the age of unsettlement, is of enormous importance.

History indicates that adversity brings people together.

The potential of making a looming danger facing the city apparent, if done well, could accelerate actions to move those elements of the city able to be moved, while, when possible, prompting the establishment of processes that could protect those parts of the city able to be saved. The approach could also include selecting objects of memory to mark the city as it was (or even the fact there was a city at all). However, above all making the danger evident is about conceptualising and planning change and the form, location, economy and culture of the new city able to house displaced people. This exercise cannot assume the reproduction of conventional urbanism – for instance, it may be far more fluid and mobile in form. Such action is also vital to trigger the slow process of creating a desire to move. Essentially the new has to be made a familiar idea. Obviously, while what is lost has to acknowledged; but the potential gains of the new have to be projected. Likewise loss can be cast critically – most cities have problems they would like to lose. Equally, opportunities for positive change would beg identification and presentation.

In this context, planning is not merely an instrumental act, but an activity that can be socialised and generalised as a participatory 'community constructing' sustainment practice. The making of the means of sustain-ability can also be the making of the means of belonging. Doing this in an emergent age of unsettlement will be a massive challenge. It requires overcoming a widespread nihilistic disposition toward the future, manifest in living hedonistically for the day – especially among the young. Likewise, it also implies finding ways to transport socio-cultural relations while over-riding the investment in a particular place. These challenges link to what will likely be an overwhelming need to foster belief in the possibility of having an 'affirmative future'. Recognising that increasingly the future cannot be assumed, such activity turns on establishing conditions of 'futuring enablement' wherein people come together (with inter-generational intent) to take action that makes a viable future. Having a sense of a future and making a future here become indivisible. In this context, a generalised expression of sustainment essentially being about 'making time' has to be generated and become generalised culturally. It has to become an ethos that parents hand to their children who in turn hand it on to their peers. It has to become an understanding translated into everyday directive action – making time and living one's life thereby becoming praxis. While such action demands considerable attention, it remains currently beyond our ken. It can only be reached by embarking on the planning process indicated.

Actually moving many millions of environmental refugees, confronting (un)natural disasters on a scale so far unimagined, feeding huge numbers of people and providing water and energy – all of this presents problems of a magnitude that will invite despair, yet they have to be faced. They will materially arrive. Somehow, the structural myopia of almost all extant human societies will have to be displaced – eyes have to lift toward that future that is rushing toward us. Mid and long-term contingency and scenario planning has to be made a commonplace and flexible skill. Having said this such thinking has commenced.[20]

Rapid Cities
Moving cities is, of course, only half the story. In every case, new construction would be needed – of both the material and social fabric of the city. Many cities might have elements of the old incorporated into the new to create some sense of continuity. Others are likely to be entirely new entities. Unquestionably, much will need to be built quickly. Two implications follow: first, the selection of sites for new cities and their design needs to prefigure disaster response planning (this should happen sooner rather than later – moving a city takes a long time); and, second, the rapid construction of such cities requires a great deal of research in building materials, construction methods, industrial systems design and delivery logistics.

The design imperative can be viewed in terms of meeting immediate needs and creating the conditions for the evolution of the city at a later date. This is to say, that the design of a rapid city does not have to deliver a totally resolved urban form, but rather, a substrate delivering a basic level of functionality upon which a proto-community could continue to evolve, design and innovate. This would mean initially, providing a basic urban infrastructure, some key functional and symbolic structures and a vast number of prefabricated buildings that could be incorporated into permanent structures or removed and converted into new building materials.

Creating a construction industry for such cities is a massively complex exercise technically, logistically and economically – yet it begs to be done. The amount of material required would be vast; designing for different climates is challenging; storing and transporting building components on the scale needed is logistically mind-blowing. So said, the exercise is not beyond contemplation. In fact, it has in modest part, been considered.

In March-April 2009, a European Union funded 'city move' workshop was conducted at Gellivare in northern Sweden – an area rich in mineral deposits. The workshop was organised by the Swedish Industrial Design Foundation and prompted by the need to move the town of Malmberget, which is slowly sliding into a huge chasm created by mining subsidence. When the town was established over a century ago it was not realised that a rich seam of the highest quality iron ore (magnetite) was directly below it. Blasting into the new ore body meant old workings collapsed – hence the pit that the town is falling into.[21] A key focus of the workshop was creating a new city and a desire to move. Among other things, this meant conceptualising a new economy (one of the problems of the area being a lack of economic diversity). One of the workshop's design teams created the concept of establishing a new city based on the manufacture of prefabricated building components for

This industry was conceived to exploit two waste materials, rock and steel-mill slag, to manufacture pre-cast concrete building components. The rock was available from an open cast copper mine not far from the iron ore mine, and the slag, from a steel mill at a sea port one hundred a fifty kilometres away (this being the port to which Malmberget's mine send their pelleted ore by rail). As the rail trucks return empty, transporting the slag would be easy. Likewise, crushers at the mine could reduce the rock to aggregate for concrete to form the basis of building components. As slag is a cementitious material, it could provide the other essential ingredient for making concrete. Because both the rock and the slag are waste materials from other processes (the rock from a local open cast copper mine and the slag from smelting iron needed to make steel) they are rated as having zero greenhouse emissions as these are assigned to the copper and steel.

In simple terms, the construction concept was to design prefabricated building components, build the required formwork, cast the concrete, store the components mostly in containers at the port from where they could be transported to where they were needed (the containers themselves would also be used as building components). Of course, this method of construction could also be used in building the new city itself. Economically, the cost of such a provision could be met, in significant part, by cities under threat via some kind of futures levy.

Needless to say, this brief description gives very little sense of the great complexity of such an activity at every level (climatically, technically, logistically and economically).

Conclusions: Architectural and Design History and Theory
What has been put forward is more than just ways of producing knowledge to serve new modes of inquiry. It has been argued that emergent global circumstances place humanity at a turning point. This situation requires new ways of thinking and acting are created and enfolded into new practices – these being beyond architecture and urban design as they are currently understood. In very general terms this implies developing a new narrative and meta-practice able to reconfigures the nature and relations of existing practices while also providing overarching stories that enable wider understanding and greater cooperation. The intent of this proposal being not only to break those divisions of knowledge that obstruct relational approaches and solutions but also to build new dynamic working relations, conversations and futural knowledge.

In turn this telling itself would expose new object in need of inquiry that new thinking and redirective practice would be able to engage. While redirective practice can be seen as a common activity bridging specific practices it can also be viewed as linking particular and often divided domains of knowledge (which would be essential when working redirectively on both a building, its use and users) As such redirective practice can be understood as post-disciplinary, in so far as it arrives as a discourse independent of any specific discipline, but as a meta-practice it can also be viewed as bringing existing practices into a new formation, which is not merely formed across (trans) disciplines but exists as a 'reconstitutive assemblage.' This means it would exist counter to

the fragmentation of faculties out of which modern disciplines emerged, but in a way that recognises the absolute need for knowledge to relationally interact. Rather than seeing this as harking back to an age of less complexity, such a model recognises that a relational mode of assembling knowledge is able to cope with complexity and even more significant, it is the most appropriate futural way to engage it.

As for the metaphoric-abstract discourses of architecture – that assemblage of ideas and metaphysical constructs that are projected onto architectural objects, practices and subjects, there is both a continuity (the past), closure (a loss of the present) and an opening (into the future). Certainly, many existing skills and areas of technical knowledge need be retained and enhanced. At the same time, how they are directed, who directs them and what they are used to create, all have to be dramatically changed and subordinated to a larger discourse and project.

Overall, there remains the question of what substitutes for architecture once its institutional foundations fall before the ravages of unsettlement and the imperative of sustainment. Certainly the name will remain attached to things past, but the redirection of much of the present and the material form of the future will be beyond its claim and capability.

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[1] Jean-Marie Macabrey 'Sea Levels May Rise Faster Than Expected' *New York Times* ClimateWire (www.nytime.com/cwire), March 11, 2009.

[2] Anjali Nayar 'Climate: When the ice melts' *Nature* 461, 1042-1046, 21 October 2009

[3] Gwynne, Dyer (2008) *Climate Wars* Scribe: Melbourne, pp 31-41.

[4] Australian Government *Defence White Paper*, Canberra, 2009, Section 9.2.

[5] op cit *Nature* October 21, 2009.

[6] This is especially the case in terms of ethics. See Tony Fry (2009) *Design Futuring: Sustainability, Ethics and New Practice* Berg: London, pp. 50-51.

[7] A direct address to the structuring of structure is made by Pierre Bourdieu (1977) *Outline Theory of Practice* (trans. Richard Nice) Cambridge: Cambridge University Press. However, it also underpins the very project of deconstruction as it exposes the foundation of thought upon which thinking stands – the seminal text here is Jacques Derrida (1974) *Of Grammatology* (trans. Gayatri Chakravorty Spivak) Balimore: John Hopkins University Press.

[8] This is my reading of Stiegler's understanding of technics brought to design. See Bernard Stiegler (2009) *Technics and Time 2* (trans. Stephen Barker) Stanford: Stanford University Press, pp. 31-2.

[9] Stiegler *Technics and Time 2* p. 70 and p. 98.

[10] Stiegler *Technics and Time 2* p. 9.

[11] Stiegler, calls it 'retentional finitude' 65.

[12] Gregory Bateson (1974) *Steps to An Ecology of Mind* London: Paladin, pp. 445-470.

[13] Stiegler *Technics and Time 2* p. 97.

[14] Stiegler *Technics and Time 2* p. 9.

[15] The idea that one has to think the future as danger – Derrida *Of Grammatology* p. 5.

[16] On the concept of Pro-duct see Tony Fry 'Design Ethics as Futuring' *Design Philosophy Papers* No. 2, 2004 (www.desphilosophy.com).

[17] On defuturing see Tony Fry (1999) *A New Design Philosophy: An Introduction to Defuturing* Sydney: UNSW Press and on futuring Tony Fry (2009) *Design Futuring: Sustainability, Ethics and New Practice* Berg: London.

[18] Tony Fry, Nora Kinnunen, Petra Perolini and Will Odom (2009) *Metrofitting: Adaptation. The City and Impacts of a Coming Climate* Brisbane: Griffith University, QCA.

[19] This is not an invitation to author utopian visions – the emphasis has to be on what's possible. This mean there has to be a means to deliver the envisaged vision. Utopias lack such means.

[20] It was evident in: the EU funded 'City Move' project in Gellivare Sweden in March 2009 – the project brought 40 designers (including the author) from around the world to work on moving the city of Malmberget; the work of the Moving Cities think tank that has recent moved from Beijing to Shanghai; and in Gold Coast 2, the recent (October 2009) award-winning project of the Master of Design Futures Program Griffith University QCA, Brisbane with architects Gall and Medek.

[21] Brigitta Svensson and Ola Wetteberg (2009) *Malmberget: Structural Changes and Cultural Heritage Processes – A Case Study,* The Swedish National Heritage Board: Stockholm.

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