FUTURE WORLDS– TO-ING AND FRO-ING

Renata Tyszczuk

We keep this civilisation narcotised, for otherwise it could not endure itself. That is why its sleep must not be disturbed…. We hold in precarious balance that which without us would plunge into the throes of universal agony. We are the last Atlas of this world. [1]

Stanislaw Lem, *The Futurological Congress*

In Stanislaw Lem's 1971 novel, *The Futurological Congress*, the protagonist Ijon Tichy wakes up from suspended animation in a future of artificial experiences induced by 'psycho-chemical' drugs. He gradually realises that society in 2089 has succumbed to a collective hallucination in which everyone sees a utopia of luxury, well-tended nature and advanced technology whereas the economy, environment and physical integrity of human inhabitants are actually in a state of collapse.

Tichy's time travelling adventure is preceded by a meeting of expert minds at a congress to discuss the future of humanity. This bears an uncanny resemblance to meetings such as the UN Conferences of the Parties which attempt to work out where society is heading and try and 'stop the future happening', with strategies, frameworks and protocols. Climate change is characterised by its relationship to the future.[2] Climate models predict possible futures and determine scenarios; there are appeals to our role in shaping futures—in adaptation and mitigation; insurance industries try to manage the risk of futures; architects attempt to design cities that can cope with the future. All these efforts are embedded in a culture replete with imaginings of utopias and catastrophes. Our thinking about future responsibilities extends to all our constructions—institutional, societal and architectural—and across all scales of inhabitation because, as Mike Hulme points out, "the future is a place that we all live in, in our imaginations."[3]

Thinking about uncertain futures in the context of global environmental change calls up a to-ing and fro-ing across temporal and spatial imaginaries. This also reflects the sense in which we are always caught between a past that refuses to go away and a future that keeps coming: Hannah Arendt describes this captivity as "an interval in time which is entirely determined by things which are no longer and not yet" that inevitably provokes a questioning.[4] We can never know the future and yet the future carries with it the promise of hope, imagination, anticipation, and transformation—for when it comes, it disappears and becomes something else. But the characterisation of the future as a to-ing and fro-ing suggests another way of approaching the predicament we find ourselves in—as an improvisation (from the Latin *improvisus,* "unforeseen") as a way of being more adaptable, more canny and more provisional with respect to current circumstances. "How can we prepare ourselves both practically and imaginatively for the unforeseen?"[5]

STORYTELLING

> Apocalypse is always easier to imagine than the strange and circuitous routes to what actually comes next.[6]
> **Rebecca Solnit**

We tell stories about our future: hopeful stories, provocative stories, catastrophic stories, impossible stories. But in terms of our present predicament, as Rebecca Solnit observes, we find it easier to conjure up End Time scenarios than pay attention to the more convoluted and everyday stories that have a say in what happens. The to-and-fro movement of stories concerns memories and anticipations: they point to worlds both familiar and unimagined. The way we respond to global environmental change and future uncertainty reveals a "fictional contingency"—by this I mean a compulsion to use narrative to either enhance or subvert a reality considered uncertain, elusive and unexplainable.

Stories, which attempt to make sense of where we have been, where we are and where we are heading, provoke an engagement with a world that is inevitably more complicated than we try and make it out to be. Through stories we encounter the world in all its haziness. Imagination and fiction, the as-if [7], not only inform the narratively mediated culture—the world of the text—but also inform science through the enrichment of its conceptual models.[8] Stories about global environmental change and its futures appear in more spheres of activity than we care to acknowledge: there are entanglements between the scenarios generated by the Intergovernmental Panel on Climate Change (IPCC) and those deployed by foresight industries, between strategies for risk management and political decision making, between architectural projections and the imaginings of future worlds in science fiction, and between everyday narratives and the theatrical rehearsals of climate change scenarios.

The to-ing and fro-ing inherent in stories helps us deal with complex and multidimensional phenomena by indicating ways of responding to our contingent situations. Stories have the potential to be *reality-shaping*, in that they create the possibility of moving backwards and forwards towards an unpredictable new reality.[9] Paul Ricoeur examines the ethical implications of narrative (drawing on Walter Benjamin) where "storytelling is the art of exchanging experiences" and experiences are "the popular exercise of practical wisdom".[10] The improvisatory nature of storytelling calls up the Aristotelian notion of *phronesis*, "practical wisdom", which refers to an ability to reflect on and act in unforeseen situations.[11] Contemporary narratives of our future tend to be characterised by a 'beginning-middle-and-end' format, with the ends mostly bad. But what I am interested in is the capacity of stories to be reality shaping and transformative, that is, those stories, that have an open-endedness that makes space for the unforeseen—a future we cannot ever really understand. Such stories have agency: they can provoke us to think about how we might live with the prospect of uncertain futures, how we can prepare for situations that we cannot anticipate, to think through our responsibilities to others and help develop our adaptive capacities.

CAUTIONARY TALES

We have cautionary tales of possible futures in abundance. You need only glance at the bookshelves for the recent spate of future disaster tales, of a 'post-apocalyptic world', 'post-human' or 'without us', along with user manuals for coping with "the end of the world as we know it". Bill McKibben's *Eaarth*, where the Earth "that we knew" is gone, lands us in science fiction manner on a harsh and unpredictable planet. In the face of global environmental and financial crisis it serves as a warning that our habitual existence might be severely disrupted and that the future no longer promises boundless economic growth and unfettered technological innovation but instead resembles a strangely familiar landscape fraught with potential danger and imminent collapse.

The future anterior disaster-warning which describes 'what will have been' is a familiar narrative trope, deployed in "A Fable for Tomorrow" the innocently named prologue to Rachel Carson's *Silent Spring*, 1962: "The roadsides once so attractive, were now lined with browned and withered vegetation as though swept by fire. These, too, were silent, deserted by all living things."[12] A similarly bleak scene is described in the closing paragraphs of James Lovelock's *Revenge of Gaia*, 2006: "meanwhile in the hot arid world survivors gather for the journey to the new Arctic centres of civilisation".[13] The tendency for future-oriented doom and gloom presented as a realised eschatology of global environmental change dominates our imagination of possible futures. From the data-driven scenarios and decadal timescales of IPCC reports through to examples in mainstream media (*The Day After Tomorrow*, 2004; *Age of Stupid*, 2009) we are everywhere confronted with fictional journeys through altered landscapes and narratives of an increasingly bleak, even apocalyptic future. worldchanging.com's Alex Steffen refers to the Renaissance concept of *terriblisma* "the strange, gratified awe one feels when beholding dreadful disasters and acts of God from afar", to hint at how we are drawn to these looming futures. "We find ourselves riveted by strange occurrences and ominous portents—like giant squid growing to monstrous sizes in the warming greenhouse waters of our oceans, or the gigantic and ancient Larsen B Ice Shelf collapsing in Antarctica."[14] This is perhaps yet another way in which "modern man" is still "in love with posterity" (as Bauman has put it, paraphrasing Diderot), where the ultimate destination of the human is located in a future which is still waiting to unfold.[15] But as in Stanislaw Lem's cautionary tale, *The Futorological Congress*, this future tends to be ever more burdened with the effects of technological and economic globalisation.

IN THE BEGINNING IS THE END

Thinking about the future is thinking also about planetary upheaval and the fragility of human life on a dynamic earth.[16] We might need to acknowledge the essential instability, precariousness and transience of the world we live in. With a plot device not unlike Voltaire's *Micromegas*, geologist and popular science writer Jan Zalasiewicz describes in *The Earth after Us*, 2009, how alien scientist-explorers decipher the history of humanity. In the future, one hundred million years from now, they come to Earth and deduce the existence of an 'event horizon' separating two major geological epochs, evident only in the geological strata, an event that triggered massive climate change and extinctions of species. This is named the Human Event Stratum, partly destroyed by erosion and other geological processes, that lies

buried between layers of sedimentary rock and varies from a thin sliver to several metres in thickness. It holds the fossilised remnants of cities, or 'urban traces',

> […] compressed outlines of concrete buildings, some still cemented hard, some now decalcified and crumbly: of softened brick structures: of irregular patches of iron oxides and sulphides representing former iron artefacts from automobiles to AK-47s: of darkened and opaque remnants of plastics: of white, devitrified fragments of glass jars and bottles […].[17]

In similar vein, Mike Davis recently announced that, "Our world […] has ended."[18] He was referring to the proposals for a new geological stratum—the Anthropocene—superceding our current era the so-called 'whole earth' or Holocene, as presented to the Stratigraphy Commission of the Geological Society of London in 2008.[19] The process of officially incorporating the Anthropocene into the geological timescale is likely to take years, in which time it may prove even more stratigraphically significant.[20] In addition to the build up of greenhouse gases, this new stratum is defined by human landscape transformation exceeding natural sediment production; by the acidification of oceans; by the relentless destruction of biota, and above all by radical instability. As Zalasiewicz writes, "technological and natural processes have already become so inextricably interlinked that our actions now will literally be raising mountain belts higher, or lowering them, or setting off volcanoes (or stifling them), or triggering new biological diversity (or suppressing it) for many million years to come".[21]

The naming of the Anthropocene positions humans as the driving force of change capable of epochal shifts, while at the same time undermining all their constructions. One of the issues we are confronted with here is the difficulty in reconciling scales, distances and temporalities—human, geological, planetary. Even if it were possible to find miniscule remnants of anthropogenic interventions in the future, the immediacy and particularity of our human life events would fail to register in geological strata. But thinking about our 'accidental' advance into the 'anthropocene era'/'human event stratum' that we are living in *now* puts us in a paradoxical situation. If the world *as we know it* has ended how can we even begin to think about how we might respond and be responsible in a new world? How do we give an account of new times if descriptions of the 'last' world are still current? Most of the available framing devices promote dualistic thinking, are either anthropocentric or ecocentric and struggle to recognise the entanglements of material, bio-cultural, technological and symbolic forces. Instead we are cajoled into talking about 'paradigm shifts' in geo-political and ethical consciousness as if one paradigm can replace another, just as one linear narrative simply follows another or one clearly defined stratum impacts on the next. Such thinking presumes a stable universe and a tidily demarcated zone of operation: an 'I' here, impacting on something, 'elsewhere'. We are familiar with a delayed and uncertain future, the sense of always acting precariously at a distance, of casting vague projections, and yet it is evident that we need to think about how to respond and be responsible, for our own miniscule histories, in the *here and now*. Yet everything seems to suggest that in the prescribed movement of history, "the forward arrow of time", there is never any turning back and that a stricken future is accelerating towards us. As James Hansen, NASA scientist warned us in 2009, "We have only four years left to act on climate change."[22]

AGE OF PREDICTIONS

> The reader should be cautioned, however, that none of the scenarios depicted in this section predicts the future.[23]

Climate change discourse concerns projections and predictions about the future of the Earth and climate scientists continue to offer us a range of plausible scenarios. It would be possible to characterise the past decade as an age of predictions. The work by the IPCC and the United Nations Framework Convention on Climate Change (UNFCCC) has been about predicting the future, and in effect, involves imagining.[24] During this time there has been growing confidence and force of argument in IPCC assessment reports about the future, including the speed and magnitude of climate change, and the role of human action. The reports are based on climate models which stretch our experience of time: some run 100 years into the future by combining information from thousands of years ago with direct observations of today; they take months to complete but only seconds to print out. Since 2000, countless predictions have been made.[25] In the words of one climate scientist, the "sheer number and complexity of predictive climate models developed since the last assessment report is enough to make one's head spin".[26]

Predictions spawn narratives. Vast computing resources (including human time) are harnessed to run the complex models that pursue simulations that result in scenarios—the 'what if' of human induced climate change and resource depletion. It is possible to trace a shift in the rhetoric of IPCC reports and their scenario offerings, from predictions to projections to storylines, but there has been little acknowledgement of the origins of the scenario genre deployed by the IPCC, the potential role of the arts and humanities or even the debt to a wider culture. As we seem to be uncomfortable with the contingent fictions of our own making, the programming of facts tends to be emphasised in IPCC reports. These continue to assume that we are more responsive to results, proofs, statements and certainties, when it comes to imagining alternative futures. This kind of presentation of science leads to the impression that "scientific truth" and its "unchallengeable secrets" is more authoritative than the imaginative registers that it can mobilise and at the same time denies the relation between the "mutable confidence" and the "shifting politics", of public and expert.[27]

Some IPCC scenarios feature rapid economic growth and the introduction of ever more efficient technologies, changes in social interaction, renewable energy production and growing populations. At the opposite, more disturbing end of the range of scenarios, there are sketches of rapid increases in CO_2 levels that lead to extreme weather, rising sea levels, flooding, drought, food scarcity, species extinction, wars over resources and mass migration. The storylines of the different scenarios result in different possible worlds. Inevitably, there are radically different interpretations of how to respond to scenarios that evoke compromised urban conglomerations and devastated landscapes, and how to intervene in world-making. These range from technological innovation of the geo-engineering or terraforming variety, through defence strategies, resource distribution and adaptation planning to an 'adoption of limits' that lends itself to being characterised as pursuit of a redemptive return to nature, even paradise.

WORST-CASE SCENARIOS

> Specially Troubled, Retrogressing, or Catastrophic worlds. This is a catch-all category that includes all the disasters that people worry about […] We include all these worlds in that group that we have defined as very improbable situations….[28]

The "Specially Troubled, Retrogressing, or Catastrophic Worlds" form one category of scenarios among those developed by Herman Kahn with the Rand Corporation in the 1960s. Kahn, the inspiration for Stanley Kubrick's *Dr Strangelove*, utilised systems theory and game theory to model the effects of nuclear war—the 'unthinkable'. Scenario planning, now standard practice in business, still works in much the same way. Kahn did not employ standard projections but wrote multiple histories of near future events as if from a more distant vantage point. His technique combined detailed analysis with imaginative storytelling to produce reports written as if by people in the future. He called this the "future-now". Kahn considered his scenarios modern day myths—compelling fictions for demonstrating threats and opportunities as well as the means to anticipate them.

> We deliberately chose the word [scenario] to deglamorise the concept. In writing the scenarios for various situations we kept saying 'Remember it's only a scenario', the kind of thing that is produced by Hollywood writers both hacks and geniuses. There is no a priori concept that a scenario should be taken seriously or that it is intended to reflect aspects of the real world. Some scenarios do; others do not.[29]

Like the fairy tales and cautionary tales of popular fiction, scenarios can warn their audience of danger but can also reassure that "it's only a scenario". The scenarios were primarily intended to stimulate thinking about the future, and Kahn and his team of storytellers were adept at devising different frameworks and categories for conjectures about political, social, economic, and cultural change that ranged from "an extreme efflorescent society" to "catastrophic worlds". The deployment of Kahn's methods by Shell from the early 1970s on led to their predictions of the energy crises of 1973 and 1979, the growth of energy conservation, the evolution of the global environmental movement, and the break up of the Soviet Union.[30] Shell considers its use of scenarios to be a way of "rehearsing the future" through a simulated journey into a future that has already been made: "Scenarios help decision makers create a database of *future memories* that they can access when the future actually arrives."[31]

Shell's prediction of "peak oil by 2000" was mirrored in the concurrent publication of the Club of Rome's *Limits to Growth* in 1972, which, in questioning the rates of consumption, also concluded that global resource extraction would peak around the second millennium. Its "Projections for Disaster" graph revealed a latent apocalyptic streak. The pessimistic futurology of publications like *Limits to Growth* and *Blueprint for Survival,* along with the catastrophic scenarios of 'improbable situations', has not only dominated discourse around global environmental change but has also squeezed out more ordinary, perhaps less dramatic tales, those of adaptation and resilience. Both environment and development campaigner discourses have tended to emphasise limits, restrictions and personal or collective hazards, with narratives that threaten intractable 'runaway' climate change. The politics of climate change, aided by the rhetoric of catastrophist scenarios, is often presented as a question of *taking precautions* or *learning our limitations* despite the fact that it is this very notion of limits and precautions with their managerial focus that, paradoxically, has limited that politics.

Attitudes to our environment are bound up with speculation on the future and predictions of growth or decline: in cities, in population, in emerging global markets, resource accumulation and depletion, in economy and energy. These speculations are often seen as essential for the 'progress' or 'success' or even the 'survival' of humanity. Apocalyptic doom-ridden scenarios of our future go hand in hand with "designs for an ailing planet".[32] As Sheila Jasanoff has shown, environmental discourse is inextricably linked with conceptions of an integrative planetary vision that imagines the earth as a fragile craft.[33] Buckminster Fuller's work demonstrated this link, with his use of the notion "Spaceship Earth", 1968. In conjunction with his prototypic dome-building, Fuller's notion of dwelling in a resource-limited spaceship has inspired self sufficient or closed loop architectures ranging from 1960s and 1970s counter-culture living experiments to ironic art works such as Alex Hartley's installation, *The world is still big*, 2011. Fuller's projects were accompanied by plans for "an omni-world-integrating electrical-energy network grid" devised for his *World Game*.[34] The Global Energy Network International (GENI) mapped the world, circling South America, linking it with North America crossing the Bering Strait to the Soviet Union and then travelling to Asia and Europe finally swinging down to Africa. The efficiency and control presented by understanding energy use in a closed system is again replicated in *Road Map 2050,* a "vision for an EU-wide decarbonised power grid" designed by the architecture and urbanism practice OMA in 2010. Fuller claimed that he "deliberately designed far into the future" as the world simply wasn't ready for his designs. [35] He also made use of the notion of scenarios referring to Einstein's "overlapping non-simultaneous episodes without beginning or end" as significant in his conception of synergetics or a "scenario Universe"—it got its name "because of its resemblance to an ever-changing film script with the threads of new comings and goings interwoven into a complex story".[36]

As if on a search for an operating manual for spaceship earth, our collective planetary journeys move back and forth across notions of borders, limits and boundaries—from the borderless world of the "blue marble" or "whole earth" to one of strict limits and back again. The latest incarnation of thinking about our limits

asks us not to overstep 'planetary boundaries', promoting instead a "safe operating space for humanity".[37] But can the Earth ever really be a safe space? As Isabelle Stengers reminds us, "of the Earth, the present subject of our scenarios, we can presuppose a single thing: it doesn't care about the questions we ask about it".[38] The earth sciences bring us tales of contingency that convey past, present and future turbulence and we struggle to conceive a world prior to us or wholly independent of our narratives, constructions and conjectures.

The precautionary principle was written into the story in the 1992 Rio Declaration: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats to serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." The introduction of the precautionary principle formally breaks the (often illusory) connection between scientific certainty and political action as it states that even in the absence of certainty, decisions could be taken. This is a principle not to be understood as one that simply urges caution or inaction in the face of unknowns, but instead as an opening to consider the possibility of taking action and also the consequences of any action. For Bruno Latour, the precautionary principle calls for "experimentation, invention, exploration, and of course risk-taking.... For all our actions we consider risk-taking and precaution-taking as *synonymous*: the more risk we take, the more careful we are.... Care and caution go together with risk-taking".[39] The precautionary principle suggests an experimental attitude to history, one that has to be followed through—a taking responsibility for the uncertainties of our futures. This is where ethical considerations come in. According to Zygmunt Bauman, ethics "differs from the present ordinary practice of crisis management in that it must deal with what-has-not-happened-yet, with a future that is endemically the realm of uncertainty and the playfield of conflicting scenarios".[40]

REHEARSING THE FUTURE

> The year is 2033. The UK is in crisis. You are in charge of your city.
> *3rd Ring Out*

3rd Ring Out: Rehearsing the Future by Zoe Svendsen and Simon Daw built a performance around emergency scenario planning for the not too distant year 2033, based on meticulous research into Cold War exercises and climate change impacts as conveyed by the IPCC scenarios, as well as the local context of each performance. Separate scenarios were designed for the production as it toured various cities in the UK, bringing home potential climate impacts: flooding, food shortages, fires, civil unrest, refugees.

What we set up in *3rd Ring Out* is a way of trying out scenarios: the conceit of the 'rehearsal' enables us to imagine, but without that imagined world acquiring the (false) status of a prediction. The format for the 'simulation' is rather like a multidimensional, multimedia 'choose your own adventure' book. The idea is to use the scenario we develop to ask a series of questions about how the audience would respond in an emergency—ethically as well as practically.

The point of the performance was to create questions and, as Svendsen acknowledges, the limitations of the theatrical, might in itself have helped to provoke further debate. The performative scenario-making was above all a catalyst for dialogue about political decision making and reshaping the practices of citizenship: "*3rd Ring Out* is a project about the impact of climate change on human relationships—as such it is an exploration of citizenship, of who we are and how we want to live."[41]

Attempts to explore responses to global environmental change in the plural, as competing interpretations of future worlds, can offer insights into how we can think of future imaginings not as representations but as stories that have the capacity to be transformative. The potential of scenario-making is not to apply scenarios as an external imperative, nor to suppose them as part of a chain of reasoning nor even to consider them as a rehearsal for an actual occurrence. Their potential lies in their imaginative reconstitutions of everyday situations and in the imaginative transformation of realities into possibilities. Ethical responses cannot be prefigured but might instead be developed through creative exchanges. Scenario-making should not be about presenting completed or even persuasive pieces of work but instead about encouraging the possible paths that could lead beyond the scenarios. The essential instability of a scenario has the potential to open up an interstitial territory—a space of deliberation or rehearsal ground for concerns to be voiced and acted on.

Following Hans Georg Gadamer, who in his "Notes on Planning for the Future" discredits the modern ideal of "smooth functioning" as a good in itself, we could think of our relation to an uncertain and precarious world on the "model of piloting" in the present rather than in terms of theoretical construction and instrumental control of the future.[42] As John Dewey remarked "We do not use the present to control the future; we use the foresight of the future to refine and expand present activity."[43] Perhaps we should not worry so much about foresight or prognostics—there is no telling what the future holds. Instead we could develop our capacity for storytelling as a means of recalibrating and revising our actions in the present such that we might become more capable of navigating situations that are shifting and contingent. As Rebecca Solnit suggests, storytelling then becomes a means of anticipating the strangeness of what comes next, a necessarily complex and fraught process of trial and error and improvisation. Stories in which "the sky is falling!" or world-ending apocalyptic narratives not only indicate the apotheosis of linear projections of our futures but also signal their own potential undoing. Rather than think of our current predicament as one which necessitates a series of constraints, that hedge against an inevitable catastrophe, it might be important to reflect on a more open and provisional engagement with the world. We may also need to acknowledge that imaginative possibilities and adaptive strategies for our future environments are ongoing experiments which are both precarious and untimely.

PROVISIONAL PROJECTS

> The more clearly we understand our temporal location as beings who straddle the past and the future without the security of a stable and abiding present, the more mobile our possibilities are and the more transformation becomes conceivable.[44]
> Elisabeth Grosz

The dramatic acceleration of processes of urbanisation and associated threats to the environment demands that we reconsider our entire approach to making and re-making cities. The use and consumption of human and natural resources, conditions of work, human rights: all of these long-established human concerns need to be thought through in the light of the need to mitigate and adapt to future change. The technical adaptations and accounting systems driven by the mode of sustainability thinking promoted by *Our Common Future* are valuable and necessary, but have proven a far from sufficient response to the imaginative and intellectual challenges posed by global environmental change.[45] The prospect of an uncertain future is the major challenge for all those charged with designing, building and maintaining enduring structures and communities on the earth's surface. It is worth bearing in mind however, that neither our constructions nor our histories are impervious to change but could instead be considered as "unaccomplished potentialities".[46]

Cities are inherently unstable and averse to smooth functioning. Mike Davis has described the appropriation of the Torre de David, a 150 metre high tower abandoned unfinished by the builders but now inhabited by 2,500 squatters, as "testimony to the acute housing shortage in Caracas". What interests Davis above all is "its emergent ecology with small businesses, jerry-rigged services; it makes it an obvious candidate for a 'green skyscraper' experiment".[47] Not without a hint of irony at the impossibility of any building, let alone a skyscraper, being 'green', (no building will be 'better' for the environment), nonetheless he draws attention to a powerful example of the enduring interplay between the planned city and more shifting, changeable, contingent world of practices. It reveals the contradictory aims and diverse definitions of the future held by different stakeholders. Even if the appropriation is makeshift or temporary, doomed to exploitation or failure, it nevertheless highlights both the necessity and opportunity of readdressing the consequences of these kinds of urban developments. The self-organised practices that have emerged outside of the official planning, market and legislative processes, unsettling the status quo, are both concrete and improvisatory. They challenge the idea that cities are predictable or stable or constructed according to some kind of blueprint and are changing the way we think about the potential of the cities we live in. This also suggests that cities may need more provisional projects that reveal possibilities that have a resourceful permanence.

Responses to global environmental change have started to stretch the boundaries of architectural practice, revealing a more strategically important role for non-building practices. These more provisional practices range from temporary appropriation of public space for performative actions in the city, community engagement with local resources or experimental scenario building.[48] Interventions that explore the temporary use of unwanted sites and ignored infrastructures and the development of innovative processes for social engagement and collective responsibility can in different ways render visible the future possibilities of a place. Emergent networked initiatives, for example the Transition Town movement or urban food production and provisioning networks, can also provide pathways for social learning, for sharing stories of success or failure that are quite mundane but nevertheless inspiring and informative.[49]

Provisional practices are typically experimental and tentative in a manner that seems appropriate to the particular juncture of global environmental changes and economic challenges facing contemporary designers of the places we live in. Although the 'temporary', 'transient' or 'pop-up' has gone mainstream, practices that display an 'agency of transformation' or 'other ways of doing architecture' have started to receive renewed attention from within the architectural humanities and critical social sciences.[50] Practices that engage with our urban condition in provisional ways offer important lessons for built environment professionals on account of their inevitable enrolment in questions about the use of resources, transitory forms of community and their radical engagement with uncertainty. Provisional projects are not simply about the expediency of possible constructions but touch on an understanding of what Homi Bhabha has called "the unbuilt". What might characterise projects as unbuilt is not whether or not they use bricks and mortar but the way in which they prioritise cultural social and geopolitical relations and "an aspirational commitment to what might have been better built or not built at all". Perhaps we need to be on the look out for the "unbuilt" and possible architectures that display a "gesture of ethical and architectural vigilance" in relation to global environmental change.[51]

Thinking through scenarios for future cities does not just rely on future visions or reframings but asks questions about the different skills required in the making of future cities—skills of adaptability and improvisation. Scenarios are also an opportunity to involve many in a conversation about what kind of society we would like to have. Stories are good at this. One way of addressing a more provisional architecture that straddles the past, present and a different kind of urban future is to think about architectures and infrastructures of resilience and hospitality, which acknowledge environmentally-driven displacement as a distinctive aspect of human pasts and part of our collective future. Andrei Codrescu's poem, "After the Deluge: A letter to America" written after Hurricane Katrina, tells a story about the aftermath of urban calamity and destruction.[52] It charts a future that is changed by New Orleans refugees moving into other/strange communities across the US. Codrescu challenges prevailing anxieties about the influx of strangers with a series of bold assertions, starting with "Your food will get better." He goes on to imagine the myriad ways in which life is bound to be different and better as it is transformed by refugees via an input of live music, festival, coffee bars, booming business, growth in self-esteem and storytelling.

Scenarios are not simply about an uncertain end point in the near or distant future that we can only anticipate. They are about the different ways in which we are getting to the future or the ways in which we are navigating our collective futures that require intention, ingenuity and discernment. Therefore we might look instead to ordinary stories that pay attention to adjustments, be they about provisioning or reuse of existing infrastructures, learning resilience or developing designs under conditions of uncertainty. They bring the future closer. The future is always past and conditional, and the immediacy of the present has its own urgent rejoinder. Effective ethical and political responses, sooner or later, also require us to sum things up, especially when we consider that new practices, new ways of doing things will require—or engender—new infrastructures. The to-ing and fro-ing suggests therefore also the move back and forth between what is plannable, calculable and what is unpredictable and unknowable. We need to think about preparing, both practically and imaginatively, for the unforeseen.

So although the linear projections of our supposed routes to progress and their potential for apocalypse are easier to imagine and narrate, it might be worth considering the more muddling, improvisatory, experimental efforts that might make a difference to our futures. Instead of concentrating only on objective calculations of a planned future, such as the weighing up of too much or too little, notions of limits or measures and knowns and unknowns the provisional imagination brings with it a different kind of ethical contingency. This can be understood above all as making space for provisional thinking and acting on issues of responsibility and relations in this world. Thinking about the future in the current context need not be about the singular vision of soothsaying, prophecy, or of foresight that strives to have the last word. Instead it can accommodate the many to-and-fro movements of the here-and-now; the in-between and precautionary moments for which we need to take care.

We are the *present* ATLAS of this world.

NOTES

1 Stanislaw, Lem, *The Futurological Congress from the memoirs of Ijon Tichy*; Michael Kandel trans., Orlando: Harcourt, 1974, pp. 145–146.

2 See Yusoff, Kathryn and Jennifer Gabrys, "Climate Change and the Imagination", *Wires*, Wiley, 19 May 2011, http://wires.wiley.com/WileyCDA/WiresArticle/wisId-WCC117.html.

3 Hulme, Mike, "Futures" dialogue in Robert Butler, Eleanor Margolies, Joe Smith and Renata Tyszczuk eds, *Culture and Climate Change: Recordings*, Cambridge: Shed, 2011, p. 76.

4 Arendt, Hannah, "Preface", *Between Past and Future*, London: Faber, 1961, p. 9.

5 See Tyszczuk, Renata, "On constructing for the unforeseen" in Butler *et al, Culture and Climate Change: Recordings*, p. 24.

6 Solnit, Rebecca, *Hope in the Dark*, Edinburgh: Cannongate, 2005.

7 On the "as-if" see Hans-Georg Gadamer, *The Relevance of the Beautiful and Other Essays*, Nicholas Walker trans., Robert Bernasconi ed., Cambridge: Cambridge University Press, 1986, pp. 124–129.

8 Ricoeur, Paul, "The Function of Fiction in Shaping Reality" in Mario J Valdés ed., *A Ricoeur Reader: Reflection and Imagination*, New York and London: Harvester Wheatsheaf, 1991, pp. 117–136.

9 Valdés ed., *A Ricoeur Reader: Reflection and Imagination*, p. 135.

10 Ricouer, Paul, *Oneself as Another*, University of Chicago Press, 1995, pp. 163–164. See also Walter Benjamin, "The Storyteller" in Hannah Arendt ed., *Illuminations*, Harry Zohn trans., London: Jonathan Cape, 1970, pp. 83–109.

11 See Tyszczuk, Renata, "On constructing for the unforeseen" in Butler *et al, Culture and Climate Change: Recordings*, pp. 24–25.

12 Carson, Rachel, *A Silent Spring*, London: Hamish Hamilton, 1963, p. 4.

13 Lovelock, James, *Revenge of Gaia*, London: Penguin Books, 2006, p. 159.

14 Steffen, Alex, "Terriblisma", *WorldChanging*, 14 November 2003, http://www.worldchanging.com/archives/000089.html, accessed May 2011.

15 Bauman, Zygmunt, *Post-modern ethics*, London: Wiley–Blackwell, 1993, pp. 42–43.

16 Clark, Nigel, *Inhuman Nature: Sociable Life on a Dynamic Planet*, London: Sage, 2010.

17 Clark, *Inhuman Nature: Sociable Life on a Dynamic Planet*, p. 189.

18 Davis, Mike, "Living on the Iceshelf: Humanity's Meltdown", 26 June 2008, http://www.tomdispatch.com/, accessed 3 July 2008.

19 Zalasiewicz, J, *et al*, Stratigraphy Commission of the Geological Society of London, "Are we now living in the Anthropocene?", *GSA Today*, vol. 18, no. 2, 2008, pp. 4–8; J Zalasiewicz *et al*, Stratigraphy Commission of the Geological Society of London, "The Anthropocene Epoch: today's context for governance and public policy", *Science in Parliament*, vol. 65, no. 2, 2008, p. 40; Zalasiewicz *et al*, "The New World of the Anthropocene", *Environment Science & Technology*, vol. 44, no. 7, 2010, pp. 2228–2231.

20 See Kolbert, Elisabeth, "Age of Man", *National Geographic*, March 2011, http://ngm.nationalgeographic.com/2011/03/age-of-man/kolbert-text/2.

21 Zalasiewicz, Jan, *The Earth After Us: What Legacy will Humans Leave in the Rocks?*, Oxford: Oxford University Press, 2009, p. 240; Zalasiewicz was one of the first geologists to adopt the new term "Anthropocene". The term was coined by Dutch atmospheric chemist and Nobel Prize winner Paul J Crutzen in 2002 in the journal *Nature* to mean the "age of man".

22 Hansen, Dr James, Robin Mckie, "We have only four years left to act on climate change–America has to lead", *The Observer*, 18 January 2009, accessed 20 July 2009.

23 IS92-Scenarios in Houghton, JT, *et al* eds, *Climate Change 1992–The Supplementary Report to the IPCC Scientific Assessment*, Cambridge: Cambridge University Press, 1992, p. 75; Bastien Girod *et al*, "The evolution of the IPCC's emissions scenarios", *Environmental Science and Policy*, 2009.

24 See Garvey, James, *The Ethics of Climate Change: Right and Wrong in a Warming World*, London: Continuum, 2008.

25 The United Nations Intergovernmental Panel on Climate Change (IPCC), *Fourth Assessment Report, Climate Change 2007*, Geneva, 2007. The *Fifth Assessment Report* is being prepared for 2014.

26 Reay, Dr David, "UK scientists' IPCC reaction", BBC News, 2 February 2007, http://news.bbc.co.uk/1/hi/sci/tech/6324093.stm, accessed 20 July 2009.

27 See Schaffer, Simon, "Public Experiments" in Bruno Latour and Peter Weibel, *Making Things Public. Atmospheres of Democracy*, Cambridge, MA: The MIT Press, 2005, pp. 298–307.

28 Kahn, Hermann, *World Economic Development: 1979 and beyond*, London: Croom Helm, 1979, p. 110.

29 Kahn, *World Economic Development: 1979 and beyond*, p. 112.

30 de Geus, Arie, *The Living Company: Habits for Survival in a Turbulent Business Environment*, Harvard Business School Press,1997, p. 53.

31 Yeh, RT, and SH Yeh, *The Art of Business: In the footsteps of Giants*, Zero Time Publishing, 2004, p. 67.

32 See, for example, "EcoRedux: Design Remedies for an Ailing Planet", Lydia Kallipoliti ed., *Architectural Design*, 208, November/December 2010. It also refers to the *Architectural Design* "Designing for Survival" issue, July 1972.

33 See Sheila Jasanoff, "Heaven and Earth: the Politics of Environmental Images", in Sheila Jasanoff and Marybeth Long Martello, *Earthly Politics: Local and Global in Environmental Governance*, Cambridge, MA: The MIT Press, 2004, pp. 31–52; on Fuller's "spaceship earth" see, pp. 41–44.

34 Fuller, Buckminster and Kiyoshi Kuromiya, *Critical Path*, New York: St Martin's Press, 1981.

35 Fuller and Kuromiya, *Critical Path*, p. 7.

36 Fuller, Buckminste and Kiyoshi Kuromiya, *Cosmography: A Posthumous Scenario for the Future of Humanity*, New York: Macmillan, 1992, p. 40.

37 See Schaffer, Simon, "Public Experiments" in Bruno Latour and Peter Weibel, *Making Things Public. Atmospheres of Democracy*, Cambridge, MA: The MIT Press, 2005, pp. 298–307.

38 Stengers, Isabelle, *The Invention of Modern Science*, Minneapolis: University of Minnesota Press, 2000, p. 145.

39 Latour, Bruno, "From Multiculturalism to Multinaturalism: What Rules of Method for the New Socio-Scientific Experiments?", *Nature and Culture*, vol. 6, no. 1, Spring 2011, pp. 1–17.

40 Bauman, *Post-modern ethics*, p. 221.

41 See "What does it mean to 'rehearse' the future?", *Rehearsing the Future Third Ring Out*, 8 July 2010, http://www.3rdringout.com/blog/what-does-it-mean-to-rehearse-the-future/, accessed 3 July 2011.

42 Gadamer, Hans-Georg, *On Education, Poetry, and History: Applied Hermeneutics*, D Misgeld, and G Nicholson eds, Albany: State University of New York Press, 1992, first published in "Proceedings of the American Academy of Arts and Sciences", *Daedulus*, vol. 102, issues 2–4, Spring 1966.

43 Dewey, John, *Human Nature and Conduct: An Introduction to Social Psychology*, New York: Henry Holt & Co., 1922, p. 313.

44 Grosz, Elisabeth, *The Nick of Time, Politics, Evolution and the Untimely*, Durham: Duke University Press, 2004, p. 14.

45 The term "sustainability" came into common use with the publication of "The Brundtland Report World Commission on Environment and Development" (WCED), *Our Common Future*, Oxford: Oxford University Press, 1987, p. 308.

46 Kearney, Richard, *On Paul Ricouer, Owl of Minerva*, Ashgate, 2004, p. 61.

47 Virginia Lopez, "Tallest squat in the world becomes emblem of Venezuela housing crisis", http://www.guardian.co.uk/world/2011/jul/20/worlds-tallest-squat-caracas-venezuela, accessed 20 July 2011.

48 For example the exhibition, Actions: What you can do with the City Canadian Centre for Architecture (CCA), Montréal, 26 November 2008–19 April 2009.

49 See, for example, Seyfang, G, and A Smith, "Grassroots Innovations for Sustainable Development: towards a new research and policy agenda", *Environmental Politics*, 2007, vol. 16, no. 4, pp. 584–603.

50 Kossak, Florian, Doina Petrescu, Tatjana Schneider, Renata Tyszczuk and Stephen Walker eds, *Agency: Working with Uncertain Architectures*, London: Routledge, 2009; Nishat Awan Tatjana Schneider, Jeremy Till, *Spatial Agency: Other Ways of Doing Architecture*, London: Routledge, 2011.

51 Bhabha, Homi, "Mumbai on My Mind: Some Thoughts on Sustainability" in Mohsen Mostafavi and Gary Doherty eds, *Ecological Urbanism*, Baden: Lars Muller Publishers, 2010, pp. 78–83.

52 Codrescu, Andrei, "After the Deluge: A Letter to America" in *New Orleans Mon Amour Twenty Years of Writings From the City*, Chapel Hill: Algonquin Books, 2006, p. 271.