

The Politics of Posterity: Techno-futures Made, Mapped and Minded

BARBARA ADAM
Cardiff University

‘SHIFTING POLITICS’
An International Workshop
University of Groningen, April 20 -22, 2006

Abstract

We live in a social world whose pace is accelerating. While the focus of most aspects of our intensified social life is narrowing down to the present, the futures we create on a daily basis cast ever longer shadows. In this situation a chasm is opening up between the technological production of these increasingly expanding futures and a predictive capacity that is getting ever shorter. The paper is concerned with this drifting apart of knowledge and practice and explores how key technologies of our age impact differently on the capacity to create, know and mind futures. The issue of responsibility is an important theme for the paper.

Biographical Note

Barbara Adam is Professor of Sociology at Cardiff University. She is founding editor of the journal *Time & Society* and has published extensively on the social relations of time. Her most recent monograph is *Time*, published in 2004 as part of the Polity Press ‘Key Concepts’ Series. She currently holds a three-year research grant under the UK’s Economic and Social Research Council’s Professorial Fellowship Scheme in which she investigates the social relationship to the future.

E-mail: adamtime@cardiff.ac.uk

web sites: <http://www.cf.ac.uk/socsi/futures/>

<http://www.cf.ac.uk/socsi/whoswho/adam/>

The Politics of Posterity: Techno-futures Made, Mapped and Minded

Introduction

The Research I am currently conducting focuses on contemporary approaches to the future and locates these in a wider historical framework. The underpinning intellectual project is concerned with action, knowledge and ethics. As such it is focused on the relation between knowing, producing and minding futures, which seems to have come adrift in contemporary societies.

Successive technological developments have hastened the pace of social life and in conjunction with economic pressures have dramatically reduced the futures horizon to a point where the present becomes the primary focus for decisions and policies¹. This acceleration has a number of interdependent consequences. First, the faster the pace of social life in general and innovations in particular, the greater is the scale of the accompanying social change. Increased pace and scale of change means that the past becomes an ever less reliable guide to the future. Secondly, the faster the pace, the more our energies and attention are focused on the present. At the same time, however, the effects of our technologies tend to extend ever further into the long-term future. Thus, for example, products of nuclear power will stay radioactive for an estimated one hundred thousand years. Synthetic chemicals move through the food chain affecting all beings for an unlimited period. Carbon dioxide emissions contribute to climate change for an unspecified period. Genetically modified organisms have the potential to mutate until the end of time.

Accompanying these multiple temporally constituted tensions seems to be a generalised sense of disquiet about responsibility for our actions: how to dispose of nuclear waste safely and responsibly, how to change the direction of energy policies to avert a worsening of climate change, how to secure food supplies for future generations without initiating irreversible environmental damage along the way?

Throughout its investigation of approaches to the 'not yet', *In Pursuit of the Future* keeps in play action, knowledge and ethics, that is, the relation between doing, knowing and minding futures. It explores when, how and why the elements of this interdependence have come adrift. It examines some of the key implications of this fracturing and considers what options might be open to a) re-establish the linkages between the disconnected parts and b) find new couplings that are more appropriate to the contemporary condition.

In this paper I begin to consider how techno-futures are made, mapped and minded. I explore the institutional structure within which socio-economic, socio-legal and socio-technological knowledge practices² take place. I scrutinize the knowledge systems that guide our actions and I briefly attend to the conventional ethics that are drawn upon to establish what is right, good and just. Explication of

¹ See Adam 1998 and Adam 2004 for work on those processes

² 'Knowledge practices' as shorthand for the combination of assumptions, concepts, approaches and (inter)actions.

implicit assumptions about and relations to the future, I argue, allows us to see what was previously hidden from view.

Techno-Futures Made and Produced: Politics of Posterity

With political debates on climate change, the management of nuclear power and its waste products, the regulation of chemicals, strategies about genetic engineering and approaches to nano-technology, for example, politics has entered the future worlds of tens, hundreds and even thousands of generations hence. This means that decisions made and policies established by today's Liberal Democracies far extend beyond the period for which their representative governments are elected. Of course, potentially the impact of all political action extends beyond a government's period of office. However, for actions that affect us and our children in the near future, there is an implicit understanding that the public have given a mandate to the government of the day to act not just on behalf of their but also their children's future. With today's political decisions that affect the very long-term future this is no longer the case.

When risks and hazards, created within the jurisdictional time-space of a particular liberal democracy, transcend their electoral boundaries, their impacts are in effect externalised: to other nations and/or to successor generations. The problems are shunted along, moved outside the sphere of responsibility. This means the effects of policies are not just experienced by their voters, their children and their children's children, but by an open-ended chain of generations without vote, voice or advocates to speak for them. In the absence of any higher time-space authority, hazards externalised in time and space are no longer recognised in principle as the concern of the offending nation's representative government in office. The long-term policies routinely pursued by contemporary liberal democracies, therefore, transgress not only the spatial but also the temporal boundaries of their political mandates and realms of jurisdiction.

Moreover, since elected representatives are responsible to their electorate only, and since it is this electorate that bestows legitimacy on a government, the rights of future and distant people who cannot enact that power relation are 'discounted' in a way that is analogous to the discounting of the future in economic processes. To put it differently, today's politics operate in a temporal territory in which all of us are trespassers.

When we look more closely at the system of liberal democratic politics we appreciate that it has developed historically as politics of space and matter. Its sphere of responsibility extends to a nation's territory, its resources and its wealth distribution. It is in charge of things that can be measured and counted: territories, people, institutions, traffic, crime, budgets and Gross National Products. Much of today's politics, however, operates not just in space but time for which no institutional frameworks have been established. With many of today's long-term policies the effects are stretched across vast periods of time and the processes involved marked by contingency, time lags and periods of invisibility where their beginnings and ends, their inception and impacts can no longer be held together in either theory or practice. In such contexts the politics of space and matter is out of its depths, thus inappropriate to the contemporary conditions of its making.

Furthermore, today's politics of posterity draws for its production of the long-term future on three dominant institutions: Science, economics and law. All three have time-space characteristics that make them eminently unsuitable for the task of guiding future-creating policies. Science draws its evidence from accumulated knowledge of the past. Economics operates from the present for the present, that is, all its forays into the future are parasitical on successor generations of humans and fellow beings. Law is guided by precedent and arbitrates future operations on the basis of matter and space. None of the dominant institutions of contemporary Liberal Democracies, we can safely say, are equipped to deal with the futures of their making. All have their competencies rooted in space and matter and most depend for their functioning on bracketing all things temporal. Without institutional structures for the operational realm of the future, today's institutional future-creating actions are conducted in a political vacuum. To elaborate on this assertion it is necessary that we look in a bit more detail at the implicit assumptions that underpin the knowledge practices associated with these key institutions.

Techno-Futures Known and Predicted: Knowledge Practices of Posterity

Equally, and parallel to the *political vacuum* in which contemporary techno-futures are produced, future-creating actions associated with the key institutions of modernity operate in a *knowledge vacuum*: the future is conceived as the not-yet, the empty and non-existing realm of potential and choice that becomes real only after it is activated into present existence by our actions. Futurologists insist on the Latin distinction between *facta* and *futura* (Jouvenel 1967: 3). The former refers to past events, done, achieved, completed and thus empirically accessible as facts. The latter encompasses that which has not yet come about, something non-factual which will become a *factum* only after it has occurred. While the one has already taken (unalterable) form the other is still open to influence and thus 'capable of ending or being completed in various ways'. A different way of expressing the distinction has been proposed by Brumbaugh (1966: 649 in Bell and Mau 1971: 9) who notes that, 'there are no past possibilities and there are no future facts'. In both cases the past is closed to influence, thus open to factual knowledge while the future is open to choice and efforts to colonize and control, and thus closed to factual inquiry. As I shall show later, this is a distinction that does not hold for today's techno-futures in progress. Yet, it is this very distinction that underpins the logic of scientific inquiry and the reason why science can only project the future on the basis of a known past.

Scientific laws are established on the basis that events, which have recurred reliably in the past, will continue to do so in the future. If one has full and extensive knowledge of such recurring processes one can predict that, in the same circumstances, the same conjunctures will occur in the same way in the future. The source of knowledge for such predictions is thus a collection of past observations projected into the future, which means, the past is the basis on which it is possible to know, for example, the next eclipse of the moon or that water will always freeze at zero degrees centigrade.

The socio-historical and economic world does not provide us with equivalent social laws. That is to say, the social past does not determine the social future in the same reliable way. History is clearly not an infallible guide to what is to come. Despite this general difficulty, however, during the late sixteenth and early seventeenth centuries first attempts were made to tell the social future scientifically on the basis of aggregates of individuals and facts. Rates of change rather than individual or unique change became the focus of predictive attention. This was the beginning of probability calculations. Church records, for example, showed that death rates were reasonably constant over time, as were the average life expectancy, the annual baptisms and the marriages. Even the causes of death seemed to follow identifiable patterns. With the application of statistical calculations it was possible to project those aggregated known figures into the future and predict social patterns of this kind with surprising accuracy.

However, in cases where there are no past and existing aggregates of assembled facts the future cannot be scientifically predicted. This means that the more novel the situation to be projected is, the less scientific prediction will be appropriate as a tool for telling the probabilistic future. The UK's BSE (Bovine Spongiform Encephalopathy) crisis during the late 1980s, was such a case in point. When cattle were afflicted by an unknown *prion* disease that seemed capable of being transferred to humans, scientists had no prior knowledge upon which to predict future deaths of animals and humans. This drama of uncertainty, lack of past knowledge and inadequacy of established tools was played out daily on television and in the newspapers, with journalists and politicians demanding predictions and prognoses about the progression of this disease in order to be able to act appropriately and scientists desperately trying to explain that this was a situation where science was unable to provide the required knowledge. Without certainty of past facts, scientists were insisting, they had no basis upon which to calculate the probable future. Many years of research would be needed to accumulate and collate data to provide a secure base from which to make predictions about the progression of this unknown disease (Adam 2000)³.

Thus we can summarise that science predicts the probable future based on known aggregates of causally connected past facts. This applies to knowledge about the cosmos, nature and the social realm. In cases where there are no past records, no relevant causal chains and/or no available accumulated data, the future cannot be calculated. As far as science is concerned, therefore, without such knowledge, there is simply no future to foretell.

One exception is the future that is projected on the basis of *promised* outcomes. Not just economists and politicians make their intended actions public, today science too engages in projected, expected outcomes of chosen actions in the present. Such promised futures emanate regularly from the laboratories of science, medical research centres, pharmaceutical companies and many more institutions where science finds application. Thus, for example, with nuclear power the public was promised electricity too cheap to meter, with geno-technology cheap, nutritious food to feed the starving, wholesale modernisation of agriculture and

³ Medical physicians, who are regularly expected to make prognoses about the progression of their patients' recoveries from illness, for example, would be in a similar predicament when confronted with an unknown disease.

cures for numerous genetic diseases. The promises, projections and visions of potential issuing from the various branches of science, we need to appreciate further, are no more certain of their predicted outcome than those made by economists or politicians. They are subject to the same delimitations and thus just as vulnerable to disappointment. Here as everywhere else, certain conditions and interdependencies influence the projected outcome: The more innovative the practice, the less secure is the basis from which to make accurate projections. Equally, the more socially interconnected the activity, the more chance there is for interference and derailment of the plans. Both these conditions – innovation and networked interdependency – have inevitable knock-on effects for bringing promises to fruition, irrespective of whether the purveyors are economists, politicians or scientists. In the case of projected outcomes of planned actions, therefore, scientists have no privileged position with respect to the certainties of their promised results. More importantly still, with predictions based on projected promises scientists have abandoned the territory upon which the logic of their investigation of the future is founded and consequently operate like everyone else in the realm of pure speculation.

When politicians turn to science for secure predictions about the future, they need to be aware what science can offer and where its boundaries of secure calculation are drawn. With respect to innovative technology, therefore, they need to recognize what precisely lies within and what outside the scientific sphere of competence. Knowledge systems rooted in space and matter, they need to appreciate further, have *few* significant contributions to make when it comes to understanding the temporal realm. They have little to offer for knowledge of the socio-scientifically created, time-space distantiated future, that is, the outcomes and long-term impacts of many of today's scientific inventions and their applications in innovative technologies.

A similarly contradictory situation is to be found with economic and legal approaches to the future. Evidence is rooted in factual data built up over time and predictions are established on the same foundations as those of science, that is, on the basis of knowledge rooted in the past. When probability theory is applied in economic contexts, for example, it is again aggregate phenomena that are being calculated and projected, such as the distribution of income and expenditure. In addition to these and other key features that allow for past-based prediction, economists have noted regularly recurring cycles of crisis, recovery and growth. Such patterns were observed within the retail price index, mortgage rates, bank base rates and many more economic variables and proved strong predictors as long as no extra-ordinary circumstances arose. Thus, for example, the great depression of the late nineteen-twenties did not fit any of the mapped and projected cycles and consequently caught most economic forecasters by surprise. Since the economy is sensitive to socio-political events there is much that can and will interfere with even the most stable and established patterns of economic activity and thus thwart the economists' best calculations of future effects.

What is important to note here is that analogous to scientific causal analyses and predictions, the foci of economic predictions are past and *present futures*, the latter being ones that are imagined, planned, projected, and produced *in* and *for* the present. We have to appreciate further that the economic future is conceived as

a (free) resource that equals money. As such it is traded, managed and controlled like any other resource. Costs and benefits of specific futures are calculated with reference to their utility for the present. To establish the present value of the future, finally, the future is discounted. The further in the future the value to be calculated is, the less it counts from the position of the present: serious trouble in a hundred years hence, therefore, is considered negligible when discounted with reference to and for our present. Thus, we can conclude that the economic future, like the legal one which I have not addressed here, is firmly tied to both the past and present. Alongside science and law, therefore, economics is a poor knowledge base upon which to build and establish a politics of technological posterity.

To recap on some of the problematic assumptions that underpin dominant knowledge practices that constitute the troubling knowledge vacuum which informs today's future-creating decisions and actions, we can say that, first, Space- and matter-based knowledge practices are adopted and inappropriately applied for politics of the future, that is, for contexts in which technological innovations outlast their creators and regulators by hundreds and even thousands of years, contexts where the complexity of potential outcomes is set in motion yet not knowable with any degree of certainty, often not knowable at all. We can state, secondly, that the future is understood from the position of the present: treated as a resource that is available to the present, to be used as needed, and discounted as deemed appropriate for the requirements of the present. Yet clearly, 'our' future is successors' present and it is they who have to deal with the consequences of our colonisation and misappropriation of their rightful domain. Thirdly, we need to acknowledge that the current politics of space and matter operate without a mandate; that they have no jurisdiction in the future present of successors. This makes us and our chosen representatives trespassers in that realm, and our time-space distantiated products illegal migrants, occupants and agents. Finally, we need to recognise that operating in this context of both a political and a knowledge vacuum means we can act with impunity, bracketing thoughts of accountability and responsibility.

Techno-Futures Minded: Ethics of Posterity

The situation does not improve when we scrutinize both the ethical context and the moral assumptions that are brought to bear on what we consider to be right and just in the politics of posterity.

The first thing to note is that both legally and morally we feel exonerated from responsibility when outcomes could not be foreseen at the time of action. Thus, for example, the people who counselled governments on whether or not to establish a nuclear capability, and who happened not to think of the wide-ranging associated problems of safety, were and are not being held legally responsible for either the resulting health hazards or the economic burden of the 52 billion Pound Sterling that befalls the UK public alone for decommissioning its power plants and managing its radio-active waste⁴. Non-knowledge, accidents and unintended or unforeseen consequences all absolve us from personal and public responsibility. The tide, however, is turning. Thalidomide, Asbestosis, smoking-related diseases and similar technologically produced hazards are cases in point

⁴ Recent news item on BBC,

where companies are being held responsible for the harm produced by their product. Thus far, such apportioning of responsibility for time-space distanced effects applies predominantly to cases where causal chains can be established over the life times of individuals. It is not clear as yet, however, what happens to responsibility in situations where effects do not materialise as symptoms for hundreds and even thousand of years. The difficulty is that we link – legally, politically and personally – responsibility to knowledge in contexts where *non-knowledge* is increasingly becoming a dominant feature.

This approach to responsibility is deeply rooted in the western cultural history. Thus, the traditional understanding of moral action is predominantly rooted in the *polis*, realm of social relations and human debate of Greek antiquity. According to Hans Jonas (1984), it entailed a number of key assumptions that still resonate strongly with moral sentiments today:

Responsibility was held to pertain between known individuals. Actions involving non-human things created in the sphere of *techne* as well as those entailing physical toil in the sphere of work, in contrast, were not considered of ethical significance.

Virtuous moral action was to be achieved in the here and now of the world of political debate. This meant that moral action and matters of ethics were defined by close proximity, that is, by effects of actions that were limited in time and space. The long-term future, in contrast, was associated with fate, providence and destiny. It was the realm of gods which was not subject to human planning, debate and moral action. As such it was outside the sphere of human responsibility.

This present-based morality was counterbalanced by an ethical orientation to eternity, regarding the good and the beautiful, truth and virtue, ideas and ideals. Responsibility of individuals and political leaders was consequently defined by eternal values, to be enacted in the present by members of particular communities.

In contrast to the Greek model, obligation towards a technologically produced, long-term future first arises with the age of science. It emerges first with the capacity to create futures that outlast their originators, secondly with the human potential to threaten not just individual existences but the continuity of the species and life as we know it and thirdly with the pursuit of progress which destabilizes eternal values and renders them historical. This context for responsibility is new and nothing in the western moral tradition provides us with the necessary tools to deal with this altered condition where the foundations for responsibility have shifted from an individual to a collective base, from local to global effects and from present impacts to actions that may not materialise as symptom for a very long time in some distant future. Today's common-sense ethical assumptions, which we have inherited from the Greeks, no longer hold for the contemporary condition. What then is so special about the new context of technologically based responsibility? Let me explain by taking nuclear technology as my example.

Beyond Immediacy

The effects of today's socio-technical, socio-economic and political processes are no longer spatially or temporally bounded. Radiation,

although most dangerous in the immediate vicinity of any leakage or accident, permeates outwards in space, spreads inwards in matter and organisms and extends temporally into the long-term future. Moral principles grounded in the immediacy of the here and now, therefore, need to be adjusted to the unboundedness of potential outcomes, an entirely new dimension of responsibility. Expansion of responsibility to the potential reach of actions, however, places us in a different position with respect to what can and can't be known, done and controlled.

Beyond Individual Responsibility

Through the ages responsibility had been associated with individuals and their deeds. While this still holds good today, especially in the application of our laws, for example, technological activity in general and the policies associated with nuclear power in particular have the potential to affect the living conditions of all people now and in the future. This is not to suggest that the impact of decisions regarding radioactive waste management, for example, will be equal across time and space, but simply to point out that the time-space dispersal of effects is no longer encompassed by a moral code focused on the actions of individuals. The changed context means that the moral project of modernity has become not just an individual but also a collective, international and cosmopolitan endeavour. National policies have to be enacted with an eye to actions and policies of other countries and with recognition of the temporally open, trans-boundary nature of potential radiation leakage or accidents arising from policy decisions about nuclear waste management.

Beyond Anthropocentrism

The transformative power of humans has always been extensive. In the industrial age, however, this capacity has reached undreamt of heights. In the process it has changed our relationship to nature. Today, nature is no longer the mere backdrop to human action but is subject to scientific intervention and invention. Flora and fauna, mountains and valleys, riverbeds and oceans, the biosphere and stratosphere – all are influenced by our actions. As such they have become ethically significant. Yet none of these domains of technological impact have their 'interests' represented in the socio-environmental polity of today. Instead, human interests grounded in the short-term politics of the here and now are arbitrated by science and justified on the basis of economic arguments.

In the light of this mismatch we are charged to rethink the traditional response and produce principles more appropriate to the contemporary condition. This requires opening up ethical concern to encompass, as our responsibility, the sphere of impact, which extends beyond humanity to all of nature and the physical bases of our existence.

Beyond Certainty and Control

While the future has always been uncertain, humans were not called to take responsibility for what was considered the realm of gods or God; they were merely required to act responsibly in and towards the realm that did not belong to them. In a secular social world, which is understood to be (to a large extent at least) the outcome of human action, the *unknown* and *unknowable* future of our making becomes inescapably the realm of

morals and values. It becomes our responsibility. That is to say, uncertainty of potential outcomes cannot absolve producers of long-term, open-ended impacts from responsibility to those affected in remote futures and places.

Moreover, the indeterminacy of unbounded effects makes reliance on scientific prediction and economic risk calculation inappropriate. Questions about justice and concern for possible harm come to the fore. When we view our actions from the position of potentially affected others we may come to decisions that take account of their and not just our interests. Thus, when quests for control and certainty in contexts of uncertainty, such as nuclear waste management, are accompanied by genuine concern for the unknown, latent and potential, then expectations of mastery are tempered and responsibility to others, distant in time, space and (species) matter can be taken seriously.

Reflections: Politics of Posterity Revisited

Without the necessary changes at the deep structural level of implicit and thus unquestioned moral assumptions, contemporary knowledge practices will continue not just in the double vacuum of political action and knowledge but also in the moral vacuum associated with time-space distanced effects of techno-futures in the making. This triad of inappropriate assumptions and associated socio-political practices amounts to *institutionally constituted irresponsibility*⁵. To begin to envisage and institute a politics appropriate to the contemporary condition therefore requires changes at the level of institutional structure, knowledge and ethics.

The politics of space and matter needs to be expanded to encompass the spatial and temporal reach of today's knowledge practices and create political structures suited to the future-creating contemporary condition.

Governmental structures of 4-5 year periods of office need to be extended to include political representatives whose remit and responsibility is the long-term future. In other words, there is a need to create institutional structures that encompass guardians of the future. Who might be eligible for such a position and what the new institutions and structures might look like is a discussion that is not yet, but will need to urgently get on the political agenda. The dominant knowledge institutions which guide current political decision-making thus need to be opened up to include who-ever we might collectively declare to be experts on the future. Again, this too is a socio-political debate that is as yet to be conducted.

Since the techno-futures which are created today affect not just the societies who produced them, those others in time and space who are implicated through the time-space distanced effects have a right to political representation. This involves political structures that extend well beyond the United Nations and similar trans-national political organisations. Serious attention thus needs to be given to future generations who currently have no say or vote, who therefore cannot hold us to account but for whose livelihood

⁵ See also Beck's *The Risk Society* and *The World Risk Society* where he too comes to the conclusion of structural irresponsibility, if by a different analytical route.

we are *de facto* responsible as soon as currently produced techno-futures impact on their bodies, their environments and their livelihoods.

The futures of our making need to be understood as *latent real*, as process futures in progress that will emerge as symptoms sometime somewhere. The *facta-futura* distinction needs to be abandoned and *futura* reconceptualised as *facta* of a non-empirical kind, that is, as future-extended processes.

This means, finally, that not just *present futures* need to feature in our horizon of concerns but also *future presents* needs to become an integral part of political debate and action.

Taken together, these points bring us to the inevitable conclusion that despite the extensive scale, responsibility extends to the reach of our actions. This principle applies irrespective of whether or not the affected and afflicted are able to hold us to account. Moreover, our collusion with the policies produced by our political representatives makes each one of us individually and collectively responsible for the techno-futures set in motion; yesterday, today and tomorrow. We are charged therefore as individuals and as social scientists not just to understand the contemporary drifting apart of action, knowledge and ethics but also to seek openings for change that help bring back into touch those three spheres of social action which have come adrift during the scientific age.

References

- Adam, B. 1998 *Timescapes of Modernity. The Environment and Invisible Hazards*. London & New York: Routledge.
- Adam, B. 2004 *Time*. Cambridge, UK & Malden, MA: Polity.
- Adam, B. 2000 'Mediated Risk: BSE in the Broadsheets', in Allan, S., Adam, B. and Carter, C., eds., *Environmental Risks and the Media*, London and New York: Routledge, pp. 117-129.
- Beck, Ulrich (1992/1986) *Risk Society. Towards a New Modernity*. London: Sage.
- Beck, Ulrich (1999) *World Risk Society*. Cambridge: Polity.
- Bell, W. and Mau, J. eds., 1971 *The Sociology of the Future. Theory, Cases, and Annotated Bibliography*, New York: Russell Sage Foundation.
- Brumbaugh, R. S. 1966 'Applied Metaphysics: truth and passing time', *Review of Metaphysics* 19: 647-666.
- HMSO 2005 report *Securing the Future: Delivering UK Sustainable Development Strategy*.
- Jonas, H. 1984 *The Imperative of Responsibility. In Search of an Ethics for the Technological Age*. Chicago UP.
- Jouvenel, B. de 1967 *The Art of Conjecture*, transl. from French by N. Lary, London: Weidenfeld and Nicolson.