

The Politics of Posterity: Challenge to Theory and Practice

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Abstract

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 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 some key challenges, such as the political vacuum, the knowledge vacuum and the ethical vacuum, that arise with contemporary politics of posterity.

Biographical Note

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The Politics of Posterity: Challenge to Theory and Practice

Introduction

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, 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: products of nuclear power, for example, will stay radioactive for an estimated one hundred thousand years while synthetic chemicals move through the food chain affecting all beings for an unlimited period. Similarly, carbon dioxide emissions contribute to climate change for an un-specifiable period while genetically modified organisms have the potential to mutate until the end of time.

In this paper I begin to explore some institutional structures and knowledge practices² within which the politics of posterity take place and scrutinize some associated assumptions that act as implicit guides to practice. I regard explication of what tends to be hidden from view as a necessary precondition to activating change in practice.

Politics of Posterity: The Political Vacuum

No Mandate

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 extend far beyond the period for which their representative governments were elected.

Of course, potentially the impact of all political action extends beyond a government's period of office. However, for actions that affect citizens and their 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, in contrast, this is no longer the case. Effects extend into a political no-man's-land, or so it seems.

Effects Externalised

When risks and hazards, created within the jurisdictional time-space of a particular liberal democracy, transcend their electoral boundaries, their impacts

¹ For detailed work on those processes, see Adam, B. *Timescapes of Modernity. The Environment and Invisible Hazards*. (Routledge, 1998) and Adam, B. *Time*. (Polity, 2004).

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

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 future 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. Or, to put it differently, today's politics operate in a temporal territory in which all of us are *trespassers*.

Politics of Space and Matter

When we look more closely at the system of liberal democratic politics we appreciate that it has developed historically as a 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: land, people, institutions, traffic, crime, budgets and Gross National Products.

Much of today's politics, however, operates not just in space but time, a domain 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 beginnings and ends, inceptions 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. For its knowledge of the future, 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. All have their competencies rooted in space and matter and for their functioning they largely depend on bracketing all things temporal. Thus, none of the three dominant institutions of contemporary Liberal Democracies, we can safely say, are equipped to deal with the futures of their making. 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 some implicit assumptions that underpin the knowledge practices involved. In this paper I shall focus on some of the knowledge practices of science to illustrate the wider point.

Politics of Posterity: The Knowledge Vacuum

Facta vs. Futura

For science the future is ‘not-yet’. It is an empty and non-existing, immaterial realm of potential and choice that becomes real only after it is activated into present existence³. At the point of transformation into the present, however, it ceases to be the future. Futurologists, such as Bertrand de Jouvenel⁴ insist on the Latin distinction between *facta* and *futura*. *Facta* refer to past events, done, achieved, completed and thus empirically accessible as facts. *Futura*, in contrast, 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 would be to point out that, ‘there are no past possibilities and there are no future facts’⁵. 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, thus *closed* to factual inquiry.

Scientific knowledge of *futura* is based on past and present *facta* projected into the future as trends and calculated as probabilities. Yet, this distinction no longer holds for many of today’s technologically produced futures in progress. In cases of innovative technologies, for example, where there are no past and existing aggregates of assembled facts to draw on, the future cannot be scientifically predicted. This means that the more novel the situation to be projected is, the less past-based scientific predictions will be appropriate. Such *knowledge vacuum* applies not just to prediction based on scientific law but also to futures calculated on the basis of probability.

The UK’s BSE (Bovine Spongiform Encephalopathy) crisis during the late 1980s, can serve to illustrate the 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 in the media, 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 without certainty of past facts, science had no basis upon which to calculate the probable future. Many years of research would be needed to accumulate and collate data to

³ The same understanding underpins knowledge practices associated with economics and law, who are not focused on in this paper.

⁴ Jouvenel, B. de 1967 *The Art of Conjecture*, transl. from French by N. Lary, London: Weidenfeld and Nicolson, p 3.

⁵ Brumbaugh, R. S. 1966 ‘Applied Metaphysics: truth and passing time’, *Review of Metaphysics* 19: 649, quoted in Bell, W. and Mau, J. eds., 1971 *The Sociology of the Future. Theory, Cases, and Annotated Bibliography*, New York: Russell Sage Foundation, p 9.

provide a secure base from which to make predictions about the progression of this unknown disease⁶.

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 (or only poor) past records, no relevant causal chains and/or no available accumulated data, the future cannot be scientifically calculated. As far as science is concerned, therefore, without such knowledge, there is simply no future to foretell. In this knowledge vacuum the future is rendered *immaterial*.

To further complicate matters, we need to realize that knowledge of facts requires a specific mode of understanding that brackets and thus conceals the temporal and invisible, the immaterial and unbounded in the subject matter. It is a way of knowing that allows observers to see only time slices, that is, facts as freeze-frames, moments frozen in time and space⁷. However, facts are not isolated in and of themselves. We make them so in order to render the temporality of reality accessible and manageable, that is, to infuse the infinite, transient and contingent complexity of life with clarity and simplicity. As such, this a-temporal stance on temporality facilitates not only counting, measurement and classification but also an illusion of control and 'objectivity'.

Promised Outcomes

Futures projected on the basis of *promised* outcomes are exceptions to the general limitations set by the logic of science. Not just economists and politicians make their intended actions public, science too projects expected outcomes of chosen actions in the present. Such promised futures also 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 genotechnology cheap, nutritious food to feed the starving, wholesale modernisation of agriculture and 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 the predicted outcomes than those made by economists or politicians. Scientific projections based on anticipated future results are subject to the same delimitations and thus just as vulnerable to disappointment as those by economists and politicians. Here as everywhere else, certain conditions and interdependencies influence the promised outcome: The more innovative the practice, the less secure will be the basis from which to make accurate projections. Equally, the more socially interconnected the activity, the more chance there is for interference and

⁶ 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. See, for example, Adam, B. 1998 *Timescapes of Modernity. The Environment and Invisible Hazards*. London & New York: Routledge. See also 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.

⁷ For further details on 'object thinking' see Serres, M. 1982 *Genesis*. Michigan: University of Michigan Press, p. 93; for object thinking approached from a time and futures perspective, see Adam 2004, *ibid.* chapter 6.

derailment of the plans. Both these conditions – innovation and networked interdependency – have inevitable effects on the capacity to bring promises to fruition, irrespective of whether the purveyors are economists, politicians or scientists.

In cases 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.

Reality Status of the Future

Most importantly, however, the knowledge vacuum relates to the assumed reality status of the future. As the ‘not yet’ domain of our hopes and fears, dreams and desires the future is positioned in the sphere not of matter but ideas. This distinction has a long intellectual heritage going back to the 4th Century AD when St Augustine⁸ delimited reality to the present while past and future were designated aspects of mind. In the social sciences this theory was further elaborated upon by George Herbert Mead in the 1930⁹. To get at some of the complexities involved, however, I prefer to draw on Max Weber’s methodological writings¹⁰

When Weber¹¹ writes about the subject matter of the social sciences, he may not use the terms ‘future’ and ‘futura’ very much, but he nevertheless leaves us in no doubt that to be human is to be future oriented, that futurity characterises individual and social action. Whether we choose between options, allow values and beliefs to guide our actions, decide on the most appropriate means to achieve a given end or act rationally and/or responsibly with commitment and/or dedication, the future features in all we do, at any given moment. The future is both cause and reason for what we do, how we act, and what decisions we take on a daily basis. What makes social action meaningful, interesting and significant,

⁸ Augustine, Saint 1983/ 397-401AD, ‘Confessions XIII’, in Bourke, V. J. ed. *The Essential Augustine*. Indianapolis, Ind.: Hackett Publishing Company, p. 229.

⁹ Mead, G. H. 1980/1932 *The Philosophy of the Present*. ed. A. E. Murphey, Chicago: University of Chicago Press.

¹⁰ For a detailed analysis of the relation, see my recent article, Adam, B. 2009 ‘Cultural Future Matters. An Exploration in the Spirit of Max Weber’s Methodological Writings’, *Time & Society* 18(1): 7 – 25.

¹¹ Weber, M. (1958/1917) ‘Politics as a Vocation’, in Gerth, H. H. and Mills, C. Wright (eds.), *From Max Weber: Essays in Sociology*. London: Routledge and Kegan Paul, pp. 77-128. Weber, M. (1958/1919) ‘Science as a Vocation’, in Gerth, H. H. and Mills, C. Wright (eds.), *From Max Weber: Essays in Sociology*. London: Routledge and Kegan Paul, pp. 129-58. Weber, M. (1969/1904) ‘Objectivity’ in Social Science and Social Policy’, in Shils, E.A. and Finch H.A eds. *The Methodology of the Social Sciences. Max Weber*. New York: The Free Press, pp. 50-112. Weber, M. (1969/1917) ‘The Meaning of ‘Ethical Neutrality’ in Sociology and Economics’, in Shils, E.A. and Finch H.A eds. *The Methodology of the Social Sciences. Max Weber*. New York: The Free Press, pp. 1-49. Weber, M. (1978/1913) *Economy and Society, Vol. I*. Roth, G. and Wittich, C. eds., Berkeley: University of California Press. Weber, M. (1989/1904-5) *The Protestant Ethic and the Spirit of Capitalism*. Translation by T. Parsons; Introduction by A. Giddens. London: Unwin Hyman.

and what makes social life worth living are our visions and dreams, our beliefs and motives, our passions and projects, our guiding principles and values.

At the same time, however, Weber was more acutely aware than any other social scientist before him (and since) that this implicit futurity at the core of our subject matter is also one of the social sciences' greatest methodological challenges. It is the logic of science, he suggested, that makes it exceedingly difficult to engage with human futurity in a meaningful way, given that science is grounded in a mode of enquiry that was established for the physical world of objects in motion for which futurity was considered irrelevant.

As a *science*, Weber argued, the social sciences are bound by the logic of scientific inquiry, which deals with empirical (present-based) sense data, gives guidance about technical (present-based) means to pre-given ends and provides (past-based) causal analysis. As a *cultural* enterprise the social sciences have to square the circle of also dealing with the *teleological* nature of human action: they have to encompass the (future-based) realm of ideas, visions and values, purposes and projects. Importantly, they have to take a stance on the normative dimension of social life and make that life intelligible. At the level of social science explanations, therefore, there is a need to achieve adequacy in both meaning and causality. In his methodological writings Weber shows that this is anything but an easy task: when the logic of science is embraced, it confronts social scientists with the uncomfortable truth that all beliefs and ultimate values are irreconcilable, that therefore choices between them are inevitable, but that those choices fall outside the remit of science.

Crucially, what lies beyond the logic of science are precisely the prospective features of socio-cultural life, that is, the actions and decisions based on beliefs, ethics and moral responsibility which differentiate us as individuals and groups from, for example, past-determined things that age and rust without orienting their processes to the future or apples that fall from the tree without considering whether or not it is the right thing to do. The futurity of the socio-cultural subject matter requires understanding (*verstehen*) of the teleology of action. It demands that we do not lose sight of the futures that guide actions in the present, and provide instead explanations that render the futurity of these actions intelligible.

Finally, social action is contingent. It is tied to its historical context. This presents social scientists not only with an ongoing, never-ending challenge but also with opportunities for renewal in light of changing conditions. If we take his challenge seriously we are set free to engage with the knowledge vacuum that surrounds knowledge of and approaches to the future. One of the most pertinent of contemporary challenges posed by engagement with the future, I want to propose, is the need to re-think and re-conceptualise *futures in progress*. Weber prepared some of the ground for this work but this particular re-vision operates in uncharted conceptual territory.

While all social theorists to date separate facts from the ideational realm of ideas, hopes and plans, this separation is no longer tenable for enacted socio-technical knowledge practices: the *enacted* world of ideas has socio-physical consequences. Some of these materialise quite quickly. Others, such as the effects from radiation,

plastics, pollution or smoking, for example, do not materialise as symptoms for a long time. Where effects are stretched across space, permeate matter and reach into distant times, the culturally created 'futures in the making' need to be recognised as *both*, material reality and latent process-world of an encoded invisible reality, a realm beyond the reach of the senses, beyond the world of linear causal connections. To re-centre the temporal and to make futurity explicit, therefore, is to emphasise not merely the world of social products but, equally, to stress the importance of the immanent, the process world beyond empirical access that is nevertheless real in its consequences.

This requires a new sense of 'facticity' that transcends conventional dualisms of *facta* and *future*, of facts and values, of the world of things and products that are empirically accessible in the present and the ideational world of values and purpose that elude such access due to their futurity¹². This task, however, is far more complex than even Max Weber had allowed for. Not only are these conflicting aspects of our work shading into each other and interpenetrating, they also mutually constitute each other in a highly complex way. Let me explain.

The future encompasses our entire world of reason as causes for actions: ideals, values, morals, commitments, hopes, fears and desires. As such it *acts on* the present: it guides our plans and choices, decisions and actions. In addition, every action materially binds pasts and futures to set free new futures. Some of these new futures may materialise quickly, in which case we can access them empirically at that point and retrospectively establish cause and effect relations. Others, more extensive in their effects on matter and across space and time, materialise at some unknown time, somewhere. For the latter, causal relations cannot be identified and the 'reality' of the 'future in process' is placed in question. From a conventional materialist perspective such futures in progress are *immaterial* in the *double sense* of the word: immanent and latent (not empirically real and not a fact) and thus of 'no material consequence'. In other words, when the future and futurity are associated with the ideational sphere, this central domain of socio-cultural life is relegated to the realm of the *immaterial unreal*.

To restrict human futurity to the ideational domain of human purpose, therefore, means that we lose sight of the other side of cultural futures: that we *create* futures that are even more difficult to access for the social sciences than the futures that guide our actions. In their latency and immanence these 'futures in the making', these deeds under way, are inappropriately denied reality status until they materialise as symptoms.

To take this particular knowledge vacuum seriously, we need to develop tools that allow us to encompass this cultural future *not just* in terms of means to given ends, *not just* as the realm of the predictable knowledge based on past experience, *not just* in terms of known goals and values but, equally, in terms of futures that are created, futures on the way whose impacts are both expected and unexpected,

¹² For a more detailed account of these dualistic distinctions and their socio-environmental implications for contemporary social science, see Adam, B. *Timewatch. The Social Analysis of Time*. (Polity, 1995), especially chapter 7; and Adam, B. 1998 *ibid.*.

intended and unintended, material and immanent, latent and potential, unknown and unknowable.

Clearly, many of the most intractable problems of contemporary existence are precisely of the processual, futuring, time-space distanced kind that fall outside the past- and present-based domain of empirical science investigation: regulation of bio-technology, genetic modification of food and nano-technology products, the decommissioning of nuclear waste and international efforts to deal with global warming, ozone depletion and the cultural extinction of species, are just some of the time-space distanced process phenomena that are currently recognised as potential and actual problems.

Those phenomena require a conception of the future as both guide to actions in the present *and* as activated by us in the present. They need an understanding that accepts the potential, virtual world of processes as im/material *real*. As such, they inescapably confront us with the issue of responsibility for outcomes. This is the third major challenge associated with the politics of posterity: Where effects permeate matter, stretch across space and reach into the long-term future, there is an urgent need to engage with the *ethical vacuum* at the core of contemporary relations to the future.

Politics of Posterity: The Ethical Vacuum

Responsibility, like political practice and social theory is rooted in assumptions that are no longer appropriate for the contemporary condition. That is to say, when considering what is right and just, the politics of posterity bring to bear moral assumptions that were established for the political life of Greek antiquity¹³.

The first thing to note about contemporary approaches to the future 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 during the middle of the last century 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 ninety billion Pound Sterling that befalls the UK public for just the decommissioning of its power plants and managing its radio-active waste. Non-knowledge, accidents and unintended or unforeseen consequences all absolve people from personal and public responsibility.

The tide, however, is turning. Thalidomide, Asbestosis, smoking-related diseases and similar technologically produced hazards are cases in point 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

¹³ For a detailed analysis, see Hans Jonas' seminal work, *The Imperative of Responsibility. In Search of an Ethics for the Technological Age*. (Chicago UP, 1984). For work that establishes an explicit connection to approaches to the future, see Adam, B. and Groves, C. *Future Matters. Action, Knowledge, Ethics*. (Brill: 2007) especially chapters 8 and 9.

situations where effects do not materialise as symptoms for hundreds or even thousands 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 ancient past of western cultural history. According to Hans Jonas, it entailed a number of key assumptions that mostly continue to 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.

In contrast to the Greek model, obligation towards a technologically produced, long-term future emerges with the age of science. It arises firstly 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 traditional structures and renders eternal values historical.

This context for responsibility is new and nothing in the established western moral tradition provides 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.

Let me explain by taking nuclear technology as my example.

Beyond Immediacy

The effects of many 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. However, such expansion of responsibility to the potential reach of actions places practitioners 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 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. Today, however, 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 human actions. As such, not just humanity but *all of nature* has 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 social scientists are charged to rethink the traditional response and open up ethical concern to encompass, as individual and social responsibility, the sphere of impact, which extends beyond humanity to all of nature and the physical bases of our existence. Moreover, uncertainty of potential outcomes cannot absolve producers of long-term, open-ended impacts from responsibility to those affected in remote futures and places.

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.

Without the necessary changes at the deep structural level of implicit and thus unquestioned moral assumptions, I therefore want to argue, 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.

Reflections: Politics of Posterity as Challenge to Theory and Practice

The triad of inappropriate assumptions associated with the politics of posterity amounts to *institutionally constituted irresponsibility*¹⁴. To begin to envisage and

¹⁴ See also Ulrich Beck's *The Risk Society* (Sage, 1992/1986), and *The World Risk Society* (Cambridge, 1999) where he too comes to the conclusion of structural irresponsibility, if by a different analytical route.

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.
- The dominant knowledge institutions – science, economics and law – which guide current political decision-making need to be opened up to include whoever we might collectively declare to be experts on the future.
- Governmental structures of 4-5 year periods of office need to be supplemented with representatives whose remit and responsibility is the long-term future.
- Since techno-futures which are created today affect not just the societies who produced them, those affected others distant in time and space have a right to political representation. To take them into consideration would involve 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 of fellow beings who cannot hold us to account but for whose livelihood we are *de facto* responsible as soon as currently produced techno-futures impact their future present existence.
- Regarding the knowledge vacuum, 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.
- Finally, not just *present futures* need to feature in our horizon of concerns but *future presents* need to become an integral part of political debate and action.

Explicit focus on the politics of posterity confronts us with the realisation that, despite the extensive scales of time and space involved, 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, collusion with the politics of posterity 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 dislocation between 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.
