RISK, ENVIRONMENT AND MODERNITY

Towards a New Ecology

edited by
Scott Lash, Bronislaw Szerszynski
and Brian Wynne

SAGE Publications
London • Thousand Oaks • New Delhi

PART I

ENVIRONMENT, KNOWLEDGE AND INDETERMINACY: BEYOND MODERNIST ECOLOGY?

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RISK SOCIETY AND THE PROVIDENT STATE

Ulrich Beck

Translated by Martin Chalmers

If modernisation is understood as a process of innovation which has become autonomous, then it must also be accepted that modernity itself ages. The other aspect of this ageing of industrial modernity is the emergence of risk society. This concept describes a phase of development of modern society in which the social, political, ecological and individual risks created by the momentum of innovation increasingly elude the control and protective institutions of industrial society.

Between Industrial Society and Risk Society

Two phases may be distinguished. The first is a stage in which consequences and self-endangerment are systematically produced, but are *not* the subject of public debate or at the centre of political conflict. This phase is dominated by the self-identity of industrial society, which simultaneously both intensifies and 'legitimates', as 'residual risks', hazards resulting from decisions made ('residual risk society').

A completely different situation arises when the hazards of industrial society dominate public, political and private debates. Now the institutions of industrial society produce and legitimate hazards which they cannot control. During this transition, property and power relationships remain *constant*. Industrial society sees and criticizes itself *as* risk society. On the one hand, the society *still* makes decisions and acts on the pattern of the

old industrial society; on the other hand, debates and conflicts which originate in the dynamic of risk society are already being superimposed on interest organisations, the legal system and politics.

In view of these two stages and their sequence, the concept of 'reflexive modernisation' may be introduced.[1] This precisely does *not* mean *reflection* (as the adjective 'reflexive' seems to suggest), but above all *self-confrontation*. The transition from the industrial to the risk epoch of modernity occurs *un*intentionally, *un*seen, compulsively, in the course of a dynamic of modernisation which has made itself autonomous, on the pattern of *latent side-effects*. One can almost say that the constellations of risk society are created because the self-evident truths of industrial society (the consensus on progress, the abstraction from ecological consequences and hazards) dominate the thinking and behaviour of human beings and institutions. Risk society is *not an option* which could be chosen or rejected in the course of political debate. It arises through the automatic operation of autonomous modernisation processes which are blind and deaf to consequences and dangers. In total, and latently, these produce hazards which call into question – indeed abolish – the basis of industrial society.

This kind of self-confrontation of the consequences of modernisation with the basis of modernisation should be clearly distinguished from the increase in knowledge and the penetration of all spheres of life by science and specialisation in the sense of the self-reflection of modernisation. If we call the autonomous, unintentional and unseen, *reflex*-like transition from industrial to risk society *reflexivity* – in distinction and opposition to *reflection* – then 'reflexive modernisation' means self-confrontation with the consequences of risk society which cannot (adequately) be addressed and overcome in the system of industrial society[2] (that is, measured by industrial society's own institutionalised standards). At a second stage this constellation can, in turn, be made the object of (public, political and academic) reflection, but this must not cover up the unreflected, reflex-like 'mechanism' of the transition. This is produced and becomes real precisely through abstraction from risk society.

In risk society, conflicts over the distribution of the 'bads' produced by it are superimposed on the conflicts over the distribution of societal 'goods' (income, jobs, social security), which constituted the fundamental conflict of industrial society and led to attempts at solution in appropriate institutions. The former can be shown to be *conflicts of accountability*. They break out over the question of how the consequences of the risks accompanying commodity production – large-scale nuclear and chemical technology, genetic engineering, threats to the environment, the arms build-up and the increasing impoverishment of humanity living outside Western industrial society – can be distributed, averted, controlled and legitimated.

At any rate, the concept of risk society provides a term for this relationship of reflex and reflection. For a theory of society and for cultural diagnosis the concept describes a stage of modernity in which the hazards

produced in the growth of industrial society become predominant. That both poses the question of the self-limitation of this development and sets the task of redefining previously attained standards (of responsibility, safety, control, damage limitation and distribution of the consequence of loss) with reference to potential dangers. These, however, not only elude sensory perception and the powers of the imagination, but also scientific determination. Modern societies are therefore confronted with the principles and limits of their own model precisely to the extent that they do *not* change themselves, do not reflect on the consequences, and pursue an industrial policy of more-of-the-same.

The concept of risk society takes this as its starting point, in order to articulate systemic and epochal transformation in three areas. *First of all*, the relationship of modern industrial society to the resources of nature and culture, on whose existence it depends, but whose reserves are being used up in the course of an assertive modernisation. This is true for nature external to human beings and human cultures as well as for cultural life-forms (such as the nuclear family and order of the sexes) and social labour assets (such as housewives' labour, which although it has still not been recognized as labour, nevertheless made men's paid labour possible).

Second, the relationship of society to the hazards and problems produced by it, which in turn *exceed the bases of societal conceptions of security*. As a result, they are, in so far as there is awareness of them, likely to upset the basic assumptions of the previously existing social order. This is true for all sectors of society – such as business, the law, academia – but becomes a problem above all in the area of political activity and decision-making.

Third, the exhaustion, dissolution and disenchantment of collective and group-specific sources of meaning (such as belief in progress, class consciousness) of the culture of industrial society (whose lifestyles and ideas of security have also been fundamental to the Western democracies and economic societies until well into the twentieth century) leads to all the work of definition henceforth being expected of or imposed on individuals themselves. This is what the concept of 'individualising process' means. Georg Simmel, Émile Durkheim and Max Weber shaped the theory of this process at the beginning of the century and investigated its various historical stages. The difference is that today human beings are not being 'released' from corporate, religious-transcendental securities into the world of industrial society, but *from* industrial society into the turbulence of world risk society. They are, not least, expected to live with the most diverse, contradictory global and personal risks.

At the same time, this release – at least in the highly developed welfare states of the West – occurs in the framework of the social state. It takes place, therefore, against a background of educational expansion, the high levels of mobility demanded by the labour market and an extended legal framework for working conditions. The individual is turned, however, into the bearer of rights (and duties) – but only as an individual. The

opportunities, hazards and ambivalences of biography which once could be coped with in the family unit, in the village community, and by recourse to the social class or group, increasingly have to be grasped, interpreted and dealt with by the individual alone. These 'risky freedoms'[3] are now imposed on individuals, without the latter being in a position, because of the great complexity of modern society, to make unavoidable decisions in a knowledgeable and responsible way; that is, with regard to possible consequences. At the same time the question as to the *we*, that is able to bind and motivate the individualised individuals, becomes urgent. If, after the end of the Cold War, even the national friendships and enmities of the East–West conflict disappear, then individuals in the networked media world, which compels not love-thy-neighbour, but love of whoever is far away, must repeatedly discover and justify even their own personal foreign policy in rapidly changing constellations.

The Provident State and Risk Society

Risks always depend on decisions – that is, they presuppose decisions. They arise from the transformation of uncertainty and hazards into decisions (and compel the making of decisions, which in turn produce risks).[4] The incalculable threats of pre-industrial society (plague, famine, natural catastrophes, wars, but also magic, gods, demons) are transformed into calculable risks in the course of the development of instrumental rational control, which the process of modernisation promotes in all spheres of life. This characterises the situation and the conflicts in early, classical industrial and bourgeois society. In the course of its expansion it is true not only for the 'feasibility' of production capacities, tax revenues, the calculation of export risks and the consequences of war, but also for the vicissitudes of individual lives: accidents, illnesses, death, social insecurity and poverty. It leads, as François Ewald argues, to the emergence of diverse systems of insurance, to the extent that society as a whole comes to be understood as a risk group in insurers' terms – as a *provident state* and a *providing state*.[5] Consequently and simultaneously, more and more areas and concerns of society that have been considered to be natural (family size, questions of upbringing, choice of profession, mobility, relations between the sexes), are now made social and individual, are thereby held to be accountable and subject to decisions, and are so judged and condemned. This situation offers the possibility of autonomous creation and also involves the danger of wrong decisions, the risks of which are to be covered by the principle of provident after-care. For this purpose there exist accident scenarios, statistics, social research, technical planning and a great variety of safety measures.

The institutions of developing industrial society can and must also be understood from the point of view of how the self-produced consequences

can be made socially calculable and accountable and their conflicts made controllable. The unpredictable is turned into something predictable; what has not-yet-occurred becomes the object of present (providential) action. The dialectic of risk and insurance calculation provides the cognitive and institutional apparatus. The process is not only theoretically, historically and philosophically of importance, but also of great political significance, because here a stage in the history of how early industrial society learned to cope with itself is opened up and investigated, and because this learning process can point the way to another modernity of self-limitation – especially at the end of the twentieth century, which is overshadowed by the ecological question.

As a result, the epochal difference that distinguishes the risks of industrial society and the bourgeois social order from the hazards and demands of risk society can also be grasped more clearly. The entry into risk society occurs at the moment when the hazards which are now decided and consequently produced by society *undermine and/or cancel the established safety systems of the provident state's existing risk calculations*. In contrast to early industrial risks, nuclear, chemical, ecological and genetic engineering risks (a) can be limited in terms of neither time nor place, (b) are not accountable according to the established rules of causality, blame and liability, and (c) cannot be compensated or insured against.[6] Or, to express it by reference to a single example: the injured of Chernobyl are today, years after the catastrophe, not even all *born* yet.

Anyone who inquires as to an operational criterion for this transition has it to hand here: *the absence of private insurance cover*. More than that, industrial technical-scientific projects are *not insurable*. This is a yardstick which no sociologist or any kind of artist needs to introduce to society from the outside. Society itself produces this standard and measures its own development by it. Industrial society, which has involuntarily mutated into risk society through its own systematically produced hazards, balances *beyond the insurance limit*. The rationality on which this judgement is based derives from the core rationality of this society: *economic* rationality. It is the private insurance companies which operate or mark the frontier barrier of risk society. With the logic of economic behaviour they contradict the protestations of safety made by the technicians and in the danger industries, because they say that in the case of 'low probability but high consequences risks' the technical risk may tend towards zero, while at the same time the economic risk is potentially infinite.[7] A simple mental experiment makes plain the extent of the normalised degeneration. Anyone who today demands private insurance cover – such as is taken for granted by every car owner – before an advanced and dangerous industrial production apparatus is allowed to get under way at all, simultaneously proclaims the end for large sectors, above all of so-called industries of the future and major research organisations, which all operate without any or without adequate insurance cover.

Hazards versus Providentiality: Environmental Crisis as Inner Crisis

The transformation of the unseen side-effects of industrial production into global ecological trouble spots is therefore not at all a problem of the world surrounding us – not a so-called 'environmental problem' – but a far-reaching institutional crisis of industrial society itself. As long as these developments continue to be seen within the conceptual horizon of industrial society, then, as negative side-effects of seemingly accountable and calculable actions, their system-breaking consequences go unrecognised. Their central significance only emerges in the perspective and concepts of risk society, drawing attention to the need for reflexive self-definition and redefinition. In the phase of risk society, recognition of the incalculability of the hazards produced by technical-industrial development compels self-reflection on the foundations of the social context and a review of prevailing conventions and principles of 'rationality'. In the self-conception of risk society, society becomes *reflexive* (in the narrow sense of the word) – that is, becomes an issue and a problem to itself.

Industrial society, the bourgeois social order and, especially, the provident and social state are subject to the demand that human lived relationships are made instrumentally rational, controllable, capable of being produced, available and (individually and legally) accountable. In risk society, however, unforeseeable side- and after-effects of instrumentally rational behaviour lead, in turn, into (or back to) the modernisation of whatever cannot be calculated, answered for or easily comprehended. It can correspondingly be shown that societal measures of organisation, ethical and legal principles like responsibility, blame and the 'polluter pays' principle (such as in the pursuance of damages) as well as political decision-making procedures (such as the majority rule principle) are not suitable for grasping and/or legitimating the processes thereby set in motion. Analogously, it is the case that social scientific categories and methods no longer work when confronted by the complexity and ambiguity of the state of affairs to be described and understood. It is not only a matter of making decisions; more importantly, in the face of the unforeseeable and unaccountable consequences of large-scale technologies, it is necessary to redefine the rules and principles for decision-making, for areas of application and for critique. The reflexivity and incalculability of societal development therefore spreads to all sectors of society, breaking up regional, class-specific, national, political and scientific jurisdictions and boundaries. In the extreme case of the consequences of a nuclear disaster, there are no bystanders any more. Conversely, that also means that under this threat everyone is affected and involved and accordingly can speak in their own right.

In other words, risk society is tendentially a *self-critical* society. Insurance experts contradict safety engineers. If the latter declare a zero risk, the former judge: non-insurable. Experts are relativised or dethroned by

counterexperts. Politicians encounter the resistance of citizens' initiatives, industrial management that of consumer organisations. Bureaucracies are criticised by self-help groups. Ultimately, industries responsible for damage (for example, the chemical industry for marine pollution) must even expect resistance from other industries affected as a result (in this case fishing and the business dependent on coastal tourism). The former can be challenged by the latter, inspected, perhaps even corrected. Yes, the risk question even divides families and professional groups, from the skilled workers of the chemical industry right up to top management,[8] often even the individual: what the head wants, the mouth says, the hand is unable to carry out.

Reflexive Modernisation as Theory of the Self-criticism of Society

Many say that with the collapse of really existing non-socialism the ground has been cut from under every critique of society. Just the opposite is true: the prospects for critique, including radical critique, have never been so favourable in Germany and elsewhere in Europe. The petrification of critique which the predominance of Marxian theory meant for critical intellectuals in Europe for a century has gone. The father figure is dead. In fact, only now can the critique of society get its breath back and see more clearly.

The theory of risk society avoids the difficulties of a critical theory of society in which the theorists apply more or less well justified standards to society and then judge and condemn accordingly (and often counter to the self-conception of those concerned). In a risk society which identifies itself as such, critique is *democratised*, as it were; that is, there arises a reciprocal critique of sectional rationalities and groups in society (see above). Thus a critical theory of society is replaced by a theory of *societal self-critique* and/or an analysis of the intersecting lines of conflict of a reflexive modernity. The uncovering of the immanent conflicts of institutions *still* programmed in terms of industrial society, which are *already* being reflected on and criticised from the perspective of the concept of the self-endangerment of risk society, allows norms, principles and practices in all society's fields of action to become contradictory – that is, measured by immanent rankings and claims. For example, risk calculations which are based on a (spatially, temporally and socially circumscribed) accident definition, are supposed to estimate and legitimate the potential for catastrophe of modern large-scale technologies and industries. This, however, is precisely what they fail to do and so they are falsifications, and can be criticised and reformed in accordance with their own claims to rationality.

It is worth defining with conceptual precision the perspectives and conditions of societal self-criticism which the theory of risk society opens

up. This is what the concept of reflexive modernisation attempts to do. It contains two components (or dimensions of meaning). On the one hand, it refers to the automatic transition from industrial to risk society (argued with reference to this theme; the same could be demonstrated, for example, by way of the fulfilment of modernity beyond the limits of male–female duality or in the systematic self-doubt of the sciences through more and better knowledge and interrogation of the foundations and consequences of scientific distribution and decision-making). It is not the looking, or the looking away, which produces and accelerates the dynamic of world risk society. This 'mechanism' has its origin in the momentum of industry, which, alarmed at 'side-effects' of hazards, rescinds its own principles (of calculation).

On the other hand, it is the case that, if this is understood, seen, enters general awareness, then a whole society is set in motion . What previously appeared 'functional' and 'rational' now becomes and appears to be a threat to life, and therefore produces and legitimates dysfunctionality and irrationality. If in addition professional *alternatives of self-control and self-limitation* arise and are propagated in contexts of activity, the institutions open themselves to the *political* right down to their foundations, and become malleable, dependent on subjects and coalitions.

This means that because the transition from industrial to risk society takes place unreflectingly, automatically, on the basis of industrial modernity's 'blindness to apocalypse' (Günther Anders), situations of danger establish themselves, which – having become the theme and centre of politics and public debates – lead to the questioning, the splitting of the centres of activity and decision-making of society. Within the horizon of the opposition between old routine and new awareness of consequences and dangers, society becomes self-critical. It is therefore the combination of reflex and reflections which, as long as the catastrophe itself fails to materialise, can set industrial modernity on the path to self-criticism and self-transformation.

Reflexive modernisation contains both elements: the reflex-like threat to industrial society's own foundations through a successful further modernisation which is blind to dangers, *and* the growth of awareness, the reflection on this situation. The difference between industrial and risk society is first of all a difference of knowledge – that is, of self-reflection on the dangers of developed industrial modernity. The political arises out of the growing awareness of the hazards dependent on decision-making, because at first property relations, social inequalities and the principles of the functioning of industrial society as a whole remain untouched by it. In this sense the theory of risk society is a *political theory of knowledge* of modernity becoming self-critical. At issue is that industrial society sees itself as risk society and how it criticises and reforms itself.

Many candidates for the subject of the critique of society have appeared on (and departed) the stage of world history and the history of ideas: the

working class, the critical intelligentsia, the public sphere, social movements of the most diverse tendencies and composition, women, subcultures, youth, lepers, self-organising psychopaths and counterexperts. In the theory of reflexive modernisation the basis of critique is first of all thought autonomously. Thanks to its momentum and its successes, industrial society is stumbling into the no man's land of uninsurable hazards. To the extent that this, briefly, is seen, fatalistic industrial modernity can transform itself into a conflictual and self-critical risk society. Self-criticism in this context means that lines of conflict, which can be organised and are capable of coalitions, arise within and between the systems and institutions (and not only at the edges and areas of overlap of private lifeworlds).

The End of Linear Technology?

Even if the above does not allow any clear conclusions as to the nature, course and successes of conflicts and lines of conflict, one forecast at least seems justified: the decision-making centres and the 'objective laws' of scientific-technological progress are becoming political issues. That gives rise to a question: does the growing awareness of risk society coincide with the *invalidation of the linear models of technocracy* – models which, whether optimistic or pessimistic about progress, have fascinated society and its science for a hundred years?

In the 1960s Helmut Schelsky (drawing on Max Weber, Veblen, Gehlen and many others) had argued that, with ever-increasing automation and the penetration of science into all spheres of life, the modern state must internalise technology, as it were, in order to preserve and expand its power. Consequently, however, it pursues normative state goals less and less, and is determined solely by technological constraints – becomes the 'technological state'. In other words, the instrumental rationalisation and the encroachment of technology exhaust the substance of an ever-modernising society. It is increasingly the case that experts rule, even where politicians are nominally in charge. 'Technical-scientific decisions cannot be subject to any democratic informed opinion, otherwise they would become ineffective. If the political decisions of governments are made in accordance with scientifically determined objective laws, then the government has become an organ of the administration of objective necessity, the parliament a supervisory organ of the correctness of expert opinion.'[9]

Jost Halfman points out that from a risk-sociological point of view, Schelsky assumes 'a development of society towards zero risk'. In other words, the explosive force of a modernity which transforms everything into decisions and therefore into risks, remains completely unrecognised. '(High) risk technologies directly contradict technocratic theoretical expectations . . . The central position of the state in the material support and

political regulation of technological progress has increasingly given political institutions an important role in the "liability" for the consequences of progress, with respect to society. Technological progress and its consequences have thereby assumed the character of collective goods.' Where society has become a laboratory (Krohn/Weyer), decisions about and control of technological progress become a collective problem.

> Science is no longer experimental activity without consequences, and technology is no longer low-risk application of secure knowledge. Science and technology produce risks in carrying out their experiments and thereby burden society as a whole with managing the risks . . . Depending on the risk culture quite different strategic consequences follow for dealing with risk. Industrialists assess risks according to cost–benefit principles; failure in the marketplace becomes the most important focus of risk avoidance. Bureaucracies judge risks according to hypothetical definitions of the common good and look for redistributive solutions in dealing with risks; here the principal problem is the institutional integrity of the administrative apparatus. Social movements measure risks by the potential for catastrophe involved and seek to avoid risks which could lead to a threat to present and future quality of life. The effective irreconcilability of these various risk assessments turns concrete decisions over acceptable risks into struggles for power. 'The issue is not risk, but power'. (Charles Perrow)[10]

What is at stake in this new risk conflict, as Christoph Lau demonstrates, is not so much risk avoidance, as the *distribution* of risk, which means that it is about the *architecture of risk definition* in the face of the growing competition between overlapping discourses of risk (such as nuclear power versus ozone hole:

> Debates over risk definitions and their consequences for society take place essentially at the level of public (or partially public) discourses. They are conducted with the aid of scientific arguments and information, which serve, so to speak, as scarce resources of the collective actors. The scientifically penetrated public sphere then becomes the symbolic location of conflicts over distribution even if this is disguised by the objectified, scientistic autonomous logic of specialist argument about risk.

Such risk definitions impose boundaries on society, by attempting to determine factors such as the size, location and social characteristics of those responsible for and those affected by the risks involved. As such, they become the focus for contestation.

> Whereas, within the framework of the 'old' distribution conflicts, the success of strategic behaviour can be designated and measured by distinct media (money, ownership of means of production, wage settlements, voting figures), such symbolic media which could unambiguously reflect risk gain and risk loss are hardly available. All attempts to establish risk yardsticks, such as probability estimates, threshold values and calculations of costs, founder, as far as late industrial risks are concerned, on the incommensurability of hazards and the problem of the subjective assessment of the probability of occurrence. This explains why conflicts essentially break out at the level of knowledge around problems of definition and causal relationships. Primary resources in this struggle over risk justice are not immediately strikes, voting figures, political influence, but above all information, scientific findings, assessments, arguments.[11]

Niklas Luhmann takes this pattern of risk conflict as his starting point. For him the distinction between risk and danger coincides with the opposition between the situation of those *making* a decision and those *affected* by the decision. Agreement between the two is difficult, if not out of the question. At the same time neither do any clear lines of conflict develop, because the confrontation between decision-makers and those affected varies according to theme and situation.

> We talk of risks if possible future injury is attributable to one's own decision. If one does not enter an aeroplane, one cannot crash. In the case of hazards, on the other hand, damage has an external source. If, say, to stay with the given example, one is killed by falling aircraft wreckage . . . Familiar hazards – earthquakes and volcanic eruptions, aquaplaning and marriages – become risks to the extent that the decisions by which it is possible to avoid exposing oneself to them become known. But that illuminates only one half of the situation, since with the decisions made, the hazards also increase once more, and, that is, in the form of hazards which result from the decisions of others . . . Thus today the distinction between risk and hazard cuts through the social order. One person's risk is another person's hazard. The smoker may risk cancer, but for others it is a hazard. The car driver who takes a chance when overtaking behaves in just the same way, the builder and operator of nuclear power stations, genetic engineering research – there is no lack of examples.

The impossibility or at least the sheer insurmountability of the barriers to agreement arise from the perception and assessment of catastrophes. Here the yardstick of the 'rationality' of the probability of occurrence is ineffective.

> It may indeed be true that the danger which comes from a nearby nuclear power station is no greater than the risk involved in the decision to drive an extra mile and a half per year. But who will be impressed by an argument like that? The prospect of catastrophes sets a limit to calculation. Under no circumstances whatsoever does one want it – even if it is extremely improbable. But what is the catastrophe threshold beyond which quantitative calculations are no longer convincing? Obviously, this question cannot be answered independently of other variables. It is different for rich and poor, for the independent and the dependent . . . The really interesting question is what counts as a catastrophe. And that is presumably a question which will be answered very differently by decision-makers and victims.[12]

That may be, but it neglects and underestimates the systemic yardstick of economic insurance rationality. Risk society is *uncovered* society, in which insurance protection *decreases* with scale of the danger – and this in the historic milieu of the 'provident state', which encompasses all spheres of life, and of the fully comprehensive society. Only the two together – uncovered *and* comprehensively insured society – constitute the politically explosive force of risk society.

On the Antiquatedness of Pessimism about Progress

The ancestral line of profound and pitiless critics of modernity is long and includes many respected names. The best thinkers in Europe have been

among them, even in the present century. Max Weber still tries to keep a cool head in the face of the grim consequence of his linear analyses (though repressed pessimism often bursts out between the lines and in the incidental and concluding remarks). In Horkheimer and Adorno's *Dialectic of Enlightenment* the judgement veers round. Here darkest darkness prevails (so that one sometimes asks oneself how the authors themselves were able to recognise what they believed they recognised). Subsequently, Günther Anders believed that the gulf between what rules our heads and what results from the labour of our hands was so great, so irrevocable, that to him all attempts to challenge it were embarrassing, if not unbearable. Karl Jaspers, Arnold Gehlen, Jacques Ellul or Hans Jonas, to whose analyses I am deeply indebted, also have to admit, when it comes to the point, that they do not know where the forces could come from which are to bring the superpower of technological progress to its knees or at least to admit contrition.

In these overpowering analyses one can read for oneself how the authors are spellbound by the automatic process they describe. Sometimes a hopeful little chapter is tacked on at the end, which bears the same relationship to the general hopelessness as a sigh to the end of the world, and then the writer makes his exit and leaves the shattered readers behind in the vale of tears he has portrayed. (I can permit myself to banter like this, since I have already demonstrated my talent as an up and coming prophet of doom.)

Certainly, hopelessness is ennobling and the advantages of wallowing in superiority, while at the same time being relieved of all responsibility for action, are not to be underestimated. However, if the theory sketched out here is correct, then the theorists of doom can begin to rejoice, because their theories are wrong or will become so!

In a discussion of the English edition of *Risk Society* Zygmunt Bauman once again summarised with breathtaking brilliance the arguments which encourage everyone to sit back and do nothing. The problem is not only that we are facing challenges on an undreamt of scale, but, more profoundly, that all attempts at solution bear in themselves the seed of new and more difficult problems. '[T]he most fearsome of disasters are those traceable to the past or present pursuits of rational solutions. Catastrophes most horrid are born – or are likely to be born – out of the war against catastrophes . . . Dangers grow with our powers, and the one power we miss most is that which divines their arrival and sizes up their volume.'[13]

But even where risks are picked up, it is always only the symptoms that are combated, never the causes, because the fight against the risks of unrestrained business activity has itself become

> a major business, offering a new lease of life to scientific/technological dreams of unlimited expansion. In our society, risk-fighting can be nothing else but business – the bigger it is, the more impressive and reassuring. The politics of fear lubricates the wheels of consumerism and helps to 'keep the economy going' and steers away from the 'bane of recession'. Ever more resources are to be

> consumed in order to repair the gruesome effects of yesterday's resource consumption. Individual fears beefed up by the exposure of yesterday's risks are deployed in the service of collective production of the unknown risks of tomorrow . . .[14]

Indeed, life and behaviour in risk society have become Kafkaesque – in the strict sense of the word.[15] Yet my principal argument comes from another angle. Even negative fatalism – it above all! – thinks of modernisation in *linear* terms and so fails to recognise the ambivalences of a modernisation of modernisation, which revokes the principles of industrial society itself.

In fact Zygmunt Bauman explicitly takes up this idea of reflexive modernisation:

> Beck has not lost hope (some would say illusion) that 'reflexivity' can accomplish what 'rationality' failed to do . . . What amounts to another *apologia* for science (now boasting reflexivity as a weapon more trustworthy than the rationality of yore and claiming the untried credentials of risk-anticipating instead of those of discredited problem-solving) can be upheld only as long as the role of science in the past and present plight of humanity is overstated and/or demonised. But it is only in the mind of the scientists and their hired or voluntary court-poets that knowledge (*their* knowledge) 'determines being'. And reflexivity, like rationality, is a double-edged sword. Servant as much as a master; healer as much as a hangman.[16]

Bauman says 'reflexivity' but fails to recognise the peculiar relationship of reflex and reflection within risk society (see above). This precisely does not mean more of the same – science, research into effects, the controls on automatic. Rather, in reflexive modernity, the forms and principles of industrial society are dissolved. With the force, and as a consequence of its momentum, there arise unforeseen and also incalculable social situations and dynamics within, but also between, systems, organisations and (apparently) private spheres of life. These present new challenges for the social sciences, since their analysis requires new categories, theories and methods.

The theory of risk society suggests, therefore, that it is what cannot be foreseen that produces previously unknown situations (which are not for that reason by any means better, or closer to saving us!). If this becomes part of general awareness, society begins to move. Whether this is a good thing or simply accelerates the general decline can be left open for the time being.

At any rate, the theory of reflexive modernisation contradicts the fundamental assumptions of negative fatalism. The proponent of the latter *knows* that which from his own assumptions he cannot know at all: the outcome, the end, the hopelessness of everything. Negative fatalism is twin brother to the belief in progress. If in the latter a momentum, thought in linear terms, becomes the source of a naive belief in progress (according to the motto 'if we can't change it, let's welcome it'), with the former the incalculable is *foreseeably* incalculable. In fact, however, it is precisely the power of fatalism which makes fatalism wrong.

For example, it is because Günther Anders is right that the diagnosis of his *Die Antiquiertheit des Menschen* (The Antiquatedness of Human Beings)[17] is antiquated. In the course of reflexive modernisation new political lines of conflict of a high-revving industrial society, which understands and criticises itself as risk society, arise. These may be better or worse, but are in any case *different*, and must first of all be perceived and decoded as such.

Similarly Zygmunt Bauman – the social theorist of ambivalence – thinks modernity in terms which are far too linear. The banal possibility that something unforeseeable emerges from the unforeseeable (and the more incalculable, the more surprising it is) is lost from sight. Yet it is with this adventure of decision-determined incalculability that the history of society begins anew at the end of the twentieth century.

Just as earlier generations lived in the age of the stagecoach, so we now and in future are living in the hazardous age of creeping catastrophe. What generations before us discovered despite resistance, and had to shout out loud at the world, we have come to take for granted: the impending 'suicide of the species' (Karl Jaspers). Perhaps fatalism is the *birth* mood of the risk epoch? Perhaps dominant yet still unspoken hopes inspire fatalism? Will the post-optimism of post-fatalism perhaps at last emerge, when the seriousness of the situation is really understood, and the situation has been accepted and understood as one's own situation? I am not playing with words. I know of no greater security and no deeper source of creativity than a pessimism which cannot be outbid. Where everything is at stake, everything can and must be rethought and re-examined.

Only the naive, ontological pessimism of certainty commits one to pessimism. Whoever cultivates doubt can and must resaddle the stallions of inquiry.

Résumé and Prospects

A completely opposite picture of the historical evolution of society is often contrasted with the succession and overlapping of industrial and risk society presented here. According to this picture, the pre-industrial epochs and cultures were societies of *catastrophe*. In the course of industrialisation these became and are becoming societies of *calculable risk*, while in the middle of Europe late industrial society has even perfected its technological and social providential and security systems as *fully* comprehensively insured societies.

Here, however, it was argued – drawing on François Ewald's systematic historical analyses – that risk society begins where industrial society's principles of calculation are submerged and annulled in the continuity of automatic and tempestuously successful modernisation. Risk society negates the principles of its rationality. It has long ago left these behind, because it operates and balances beyond the insurance limit. This is only

one indicator which demonstrates that an enterprise which began with the extension of calculability has slipped away into what is now decision-determined incalculability. The results are concrete reciprocal possibilities of critique and politicisation within and between institutions, lifeworlds and organisations.

On the whole this represents only *one* special case of reflexive modernisation. The concept combines the reflex of modernisation threatening itself with reflection on this (self-) threat, whereby new conflicts and tensions between interests run through and split society. That, however, leads to further questions.

Does risk society already begin where the insurance limit has been crossed, but this is neither seen nor understood? How does this condition of industrial society, which by abstraction from the consequences and hazards actually exacerbates these, at the same time block out any insight into its threat to itself? Here the unsettling effects of risk society emerge and grow more significant, but they are not comprehended as such and are not at all made the object of political action and societal (self-) criticism. Are these disruptions of a modernisation annulling its own principles thereby deflected and distorted into turbulences of every kind – from violence to right-wing extremism?

Or perhaps risk society only begins when the sound barrier of insurability has been broken *and* this has been understood, noted and made into the theme and conflict which is superimposed on everything. Do these turbulences of an industrial society which understands and criticises itself *as* risk society now present a way out from the feeling that there is no way out? Or do the 'no exits' simply fork here, leaving no perspectives for action, but only a general paralysis and blockages which accelerate the catastrophe?

A third variant, involving both, would also be conceivable – first, the crossing of the insurance limit, leaving whole industries and areas of research hovering without net and parachute in the weightless zone of non-insurability; and second, the comprehension of this situation. These are certainly necessary but not sufficient conditions of risk society. It only begins where the discussion of the repair and reformation of industrial society become clearly defined. Does, therefore, talk about risk society only start to make full sense with the ecological reform of capitalism? Or does it already become less meaningful there, because, as a result, the politicising dynamic of decision-determined hazards begins to fade away?

Are there not always first of all, and permanently, the distribution conflicts of an industrial society with a more or less encompassing welfare state? Whereas risk questions and conflicts are only superimposed on these as long as the latter appear tamed – that is, in periods of economic upturn, low unemployment, etc.?

All these questions require a new approach in order to be answered, which would be beyond the scope of this chapter. But I shall nevertheless make one point. The political confusions of risk society also arise

(in contrast to the distribution conflicts of a society of lack) because institutional answers to the challenges of an uncovered (global) society of hazards in a comprehensively insured milieu have so far hardly been thought up, invented, still less tested and successfully realised. In other words, the contours of the social state are familiar. No one knows, however, how, whether and by what means it might be possible to really throttle back the self-endangering momentum of the global risk society. Talk of the nature state – by analogy with the social state – remains just as empty in this context as attempts to cure industrial society of its suicidal tendencies with more of the same: morality, technology and ecological markets. The necessary learning step still lies ahead of the global risk society on the threshold of the twenty-first century.[18]

Notes

An earlier version of this chapter was originally published in *Der Vorsorgestaat*, edited by François Ewald © Suhrkamp Verlag, Frankfurt am Main, 1993.

1. See on this: S. Lash (1992) 'Reflexive modernization: the aesthetic dimension', *Theory, Culture and Society*, 10(1): 1–23. U. Beck, A. Giddens and S. Lash (1994) *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order* (Cambridge); R. Merten and T. Olk (1992) 'Wenn Sozialarbeit sich selbst zum Problem wird – Strategien reflexiver Modernisierung', in T. Rauschenbach and H. Gängler (eds), *Soziale Arbeit und Erziehung in der Risikogesellschaft*. Berlin: Neuwied. 81–100; T. Rausenbach (1992), 'Soziale Arbeit und soziales Risiko', in ibid.: 25–60; U. Beck (1996), *The Renaissance of Politics* (Cambridge); W. Zapf (1992) 'Entwicklung und Zukunft moderner Gesellschaften seit den 70er Jahren', in H. Korte and B. Schäfers (eds), *Einführung in Hauptbegriffe der Soziologie*. Opladen, esp. p. 204.

2. U. Beck (1992) *Risk Society: Towards a New Modernity*. London; U. Beck (1995) *Ecological Politics in an Age of Risk*. Cambridge: Polity.

3. U. Beck and E. Beck-Gernsheim (eds) (1994) *Riskante Freiheiten – Individualisierung in der modernen Gesellschaft*. Frankfurt am Main.

4. There is now a consensus on this: see F. Ewald (1986) *L'État Providence*. Paris: Editions Grasset. A. Evers and H. Nowotny (1987) *Über den Umgang mit Unsicherheiten*. Frankfurt am Main; P. Lagadec (1987) *Das grosse Risiko*. Nördlingen; C. Perrow (1984) *Normal Accidents: Living with High-risk Technologies*. New York: Basic Books; C. Lau (1991) 'Neue Risiken und gesellschaftliche Konflikte', in U. Beck (ed.), *Politik in der Risikogesellschaft*. Frankfurt am Main; J. Halfmann (1990) 'Technik und soziale Organisation im Widerspruch', in J. Halfmann and K.P. Japp (eds) *Riskante Entscheidungen und Katastrophenpotentiale*. Opladen, as well as the other essays collected in this volume; V. von Prittwitz (1990) *Das Katastrophen-Paradox*. Opladen; W. Bonss (1991) 'Unsicherheit und Gesellschaft', *Soziale Welt*: 258–77; N. Luhmann (1993) *Risk: A Sociological Theory*. Berlin; A. Hahn, W.H. Eirmbter and R. Jacobs (1992) 'Aids: Risiko oder Gefahr', *Soziale Welt*: 404–21; also my own books mentioned in note 2; D. Brock (1991) 'Die Risikogesellschaft und das Risiko soziologischer Zuspitzung', *Zeitschrift für Soziologie*, 1: 12–24; K.P. Japp (1992) 'Selbstverstärkungseffekte riskanter Entscheidungen', *Zeitschrift für Soziologie*: 33–50.

5. F. Ewald (1986), op. cit.

6. U. Beck (1991) *Ecological Enlightenment: Essays on the Politics of the Risk Society*. Atlantic Highlands, NJ. p.2.

7. Recently, the insured but increasingly incalculable hazards which have driven many insurance companies to the brink of ruin have been added to what cannot be insured. The

international insurance trade is feeling the devastating consequences of the greenhouse effect. This encourages tornadoes, which, for example, in 1992 in Florida alone, caused insurance losses of 20 billion dollars. Nine insurance companies went bankrupt because of the hurricanes in Florida and Hawaii, according to Greenpeace. The result is that insurance companies drop risks. Today, new house owners in Hawaii can no longer get any insurance cover. The same could soon also be true for Florida and the US Gulf Coast, reports *Süddeutsche Zeitung* (3 February 1993: 12).

8. R. Bogun, M. Osterland and G. Warsewa (1992) 'Arbeit und Umwelt im Risikobewusstsein von Industriearbeitern', *Soziale Welt* 2: 237–45; H. Heine (1992) 'Das Verhältnis der Naturwissenschaftler und Ingenieure in der Grosschemie zur ökologischen Industriekritik', *Soziale Welt*, 2: pp. 246–55; L. Pries (1991) *Betrieblicher Wandel in der Risikogesellschaft*. Opladen.

9. H. Schelsky (1965) 'Der Mensch in der wissenschaftlichen Zivilisation', in Schelsky, *Auf der Suche nach Wirklichkeit*. Düsseldorf. p. 459.

10. J. Halfmann (1990) 'Technik und soziale Organisation im Widerspruch', op. cit.: 21, 26, 28 U. Beck (1995) 'The World as laboratory', in Beck, *Ecological Enlightenment*, op. cit.: 107ff.

11. C. Lau (1991) 'Neue Risiken und gesellschaftliche Konflikte', op. cit.: 254.

12. N. Luhmann (1991) 'Verständigung über Risiken und Gefahren', *Die politische Meinung*: 81, 91. See Luhmann (1993) *Soziologie des Risikos*. Berlin.

13. Z. Bauman, 'The solution as problem', *The Times Higher Education Supplement*, 13 November 1992: 25.

14. Ibid.

15. U. Beck (1995) 'We fatalists', in Beck, *Ecological Enlightenment*, op. cit.: 77ff.

16. Z. Bauman (1992) 'The solution as problem', op. cit.

17. Günther Anders (1982) *Die Antiquiertheit des Menschen* (7th edn). Munich.

18. See U. Beck (forthcoming) *The Renaissance of Politics*. Cambridge: Polity. A step in this direction was taken with the switch of the Federal German Environmental Liability Law from liability for damage caused by intentional and negligent acts to absolute liability. Under this law (changed in 1991 following the major fire in a warehouse belonging to Sandoz, the Basle chemical company) companies are liable – without proof of fault – for damage up to a level of DM160 million each for injury to persons and to property. A *suspicion of cause* is sufficient (para. 6, Environmental Commerical Code): simply, if the 'plant is likely, given the circumstances of the particular case, to cause the injuries arising, then it is presumed that the injury has been caused by this plant'. In other words, the burden of proof is no longer on the injured party, who, as a rule, cannot offer proof, but on the (potential) injurer. Para. 19, appendix 2, requires, for especially high-risk production plants, a 'cover provision', which – under given conditions – can effectively only be provided by an environmental liability insurance. According to an insurance model for environmental risks developed by the liability insurers, the 'legal liability under civil law is insured for injuries to persons and property which have been caused by an "environmental effect" on ground, air or water' (Jörrissen). Uninsured and uninsurable in principle are thereby injuries to the plant itself, and contaminated sites. Here the limit of *economically* incalculable hazards has quite evidently been reached and/or crossed, because the international reinsurance market does not make any provision for these environmental risks either. The result is that 'hundreds of thousands of companies will have to take good care' (cf. *Süddeutsche Zeitung*, 13–14 February 1993: p. 24).