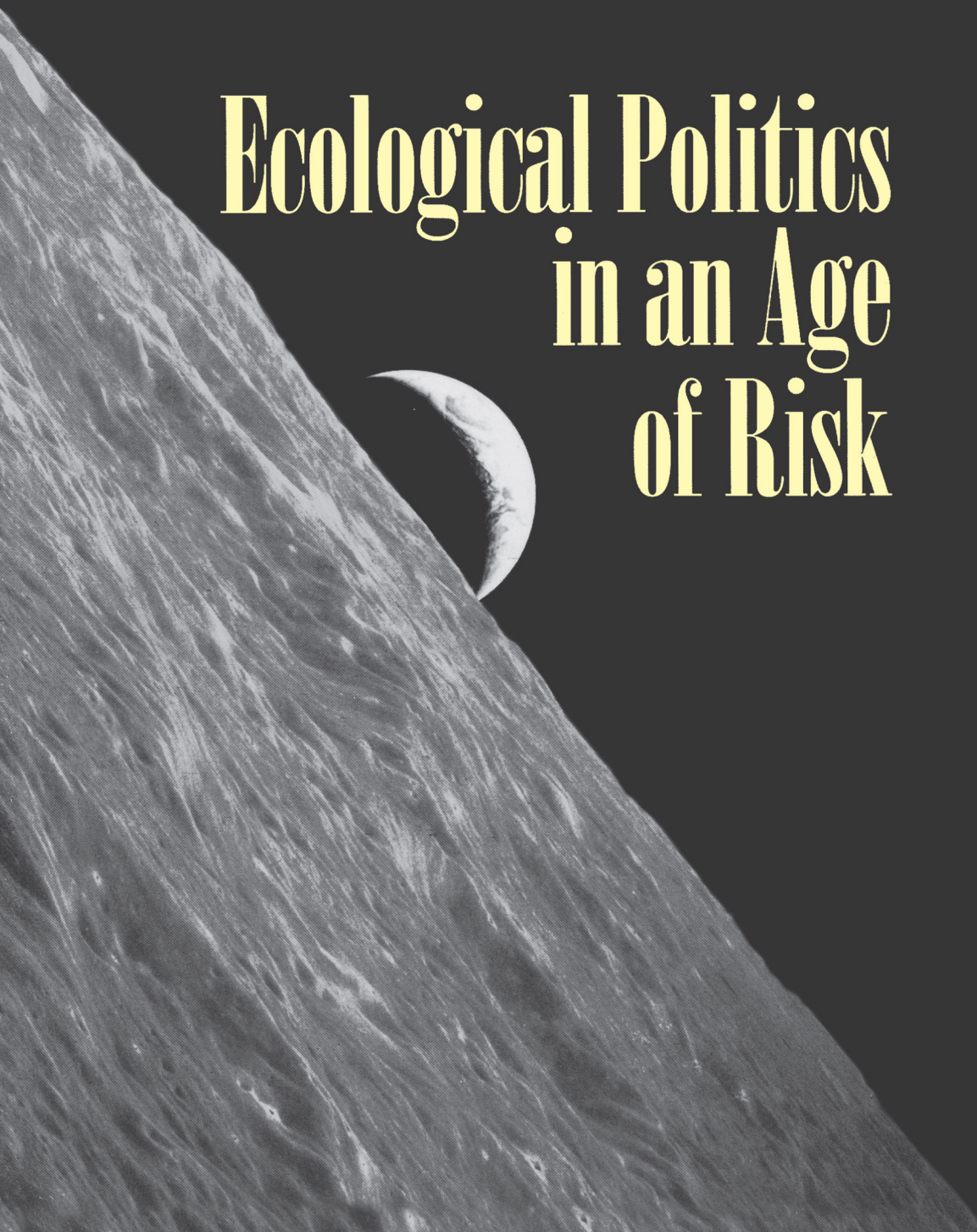


U L R I C H B E C K

Ecological Politics in an Age of Risk



ECOLOGICAL POLITICS IN AN AGE OF RISK

*For
Etty Hillesum,
whose diaries accompanied me
in the writing of this book*

*According to a Red Cross report, Etty Hillesum was
killed in Auschwitz on 30 November 1943; her
parents and brothers also lost their lives there.*

Ecological Politics in an Age of Risk

ULRICH BECK

Translated by Amos Weisz

Polity Press

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Translator's Note

Several problems face the translator of this book. First, and most obvious, is the fact that it was written before the removal of the Iron Curtain in 1989, and hence some anachronisms will strike the reader. Second, English frequently offers several words where only one is available to the German-speaker and -writer. Thus *Sicherheit* can be translated as 'security', 'safety' or 'certainty', depending upon the context. I have tried to give the appropriate English word, at the cost of a loss of linguistic word-play. Thus 'reactor safety' (*Reaktorsicherheit*) is mentioned in the context of the 'security state' (*Sicherheitsstaat*). Similarly, *Politik* can be translated as either 'politics' or 'policy'; and so forth. Third, and last, a direct translation of the cadences of Ulrich Beck's prose would appear impossibly involuted, at times, to the English eye. As far as I could, I have shortened some of the longer sentences, sometimes changing the order of clauses.

Amos Weisz

Preface

The thoughts expressed here are the fruit of many conversations and discussions. Above all, I have woven into the fabric of the book ideas that I owe to my life with my wife and colleague Elisabeth Beck-Gernsheim. Peter Berger, Wolfgang Bonss, Ronald Hitzler, Christoph Lau, Maria Rerrich, Renate Schütz and Rainer Wolf made trenchant comments and gave helpful advice on the book's structure. I also thank Reiner Keller, Gerhard Mutz and Claudia Wurst for giving greater precision to some of my formulations.

Many people have struggled through the false turns of the early drafts and given unstinting advice from which subsequent readers will benefit, especially Peter Gross, Jobst Günther, Heinz Hartmann and Dieter Mertens. Angelika Schacht and Gerlinde Müller have also been endlessly reliable both in typing the text and in making sure that I was left time in which I was free to write.

I thank the Deutsche Forschungsgemeinschaft (German Research Council) for their generous support.

Lastly I acknowledge with gratitude the contribution of the gleaming Starnberger See.

Ulrich Beck

Introduction: *The Immortality of Industrial Society and the Contents of this Book*

The theme of this book is the paradigm confusion involved in the management of hazards. The challenges of the atomic, chemical and genetic age at the turn of the twenty-first century are discussed in conceptual and prescriptive terms that derive from the early industrial society of the nineteenth and early twentieth centuries. A multiple disjunction separates the risks of early industrialization from the hazards of technologically advanced civilisation.

1 These latter hazards cannot be delimited spatially, temporally, or socially; they encompass nation-states, military alliances and all social classes, and, by their very nature, present wholly new kinds of challenge to the institutions designed for their control.

2 The established rules of attribution and liability – causality and guilt – break down. That means that their careful application to research and jurisdiction has the contrary effect: the hazards increase and their anonymization is legitimated.

3 The hazards can only be minimized by technological means, never ruled out. In an age of worldwide growth of large-scale technological systems, the least likely event will occur in the long run. The technocracy of hazard squirms in the thumbscrews of the safety guarantees which it is forced to impose on itself, and tighten time and again in the mass-media spotlight of the bureaucratic welfare state.

4 The lack of provision for catastrophe plainly exposes the paradigm error, the bewitchment of reason caused by the false belief that the twentieth century is only the continuation of the nineteenth. If the rafters are on fire, the fire brigade will arrive, the insurance company will pay, the necessary medical attention and so forth will be given.

This security system, which anticipates social provision for the worst conceivable case, broke down with the advent of large-scale (nuclear, chemical, ecological, genetic) hazards. Accidents now frequently cause irreversible damage and destruction that may have a determinable beginning but no foreseeable end. Yet it is not only 'accident' statistics that fail to address the historically unprecedented fact of artificial disasters of undeterminable extent; the guiding idea of economic compensation, which has prevailed hitherto, also fails to meet the case.

These open-ended, ultimately irremediable large-scale hazards are, however, forced upon the heightened safety consciousness of citizens with every means at the disposal of state authority. In so far as the paradigm confusion, upon which industry and politics have built their safety guarantees, is revealed in the sequence of disasters, near-disasters or hushed-up disasters, a great deal happens, even if it does not appear to. The social explosiveness of hazards develops its own political momentum: risks consciously taken must be socially answered for, as they endanger the lives of everyone and stand in open contradiction to the state's institutionalized pledges of safety and welfare.

It is not only seals in the North and Baltic Seas that suffer agonizing deaths. Chemicals that are today an integral part of the civilized world have arrived in profusion at the penguin colonies of the Antarctic. Yet the law is circumscribed by the unquestioned assumptions of a different epoch; it can intervene only when the 'sole culprit', that vestige of tradition, has been apprehended in the world of chemicals. In the legalized international traffic in harmful and toxic substances, the sole culprit is also an extinct species. As long as the universal dissemination of poisons is ensured by the absence or laxity of maximum pollution levels, holding a single individual liable is comparable to trying to drain the ocean with a sieve. This is precisely what organized irresponsibility means. The interpretation of the principle of causation in individual terms, which is the legal foundation for hazard aversion, protects the perpetrators it is supposed to bring to book. It is absurd how an ostensibly protective judicial system, with all its laws and bureaucratic pretensions, almost perfectly transforms collective guilt into general acquittal.

Safety issues that convulse societies from the Urals to the Atlantic are, in the final analysis, illegitimately decided by the corporation of engineers of our high-risk civilization. These decisions are taken under cover of the empowerment formula, 'state of science and technology', which puts the essence of safety laws, namely their small

print, into the hands of corporate owners and experts. It is as if safety experts could claim certainty for judgements which are always and necessarily based on probability; as if engineers or physicians, however brilliant in their own field, knew anything about the political explosive they undertake to guard closely behind safety barriers, which are in turn constructed out of highly permeable probability calculations; and as if, in an age that considers itself democratic, they were entitled to sit on the throne and bid us to live dangerously.

In the absence of societal debate and extra-parliamentary opposition, manipulation of the genetic code continues apace, supplanting the cultural invariants of life as it is known. Governments need to be shocked by newspaper reports into asking what society is in the test-tubes of the genetic engineers, and to which (now biologically manipulable) laws it is subject. People are alarmed. Yet while the concerns of 'progress' are free of public control, this vague sense of alarm can find no point of application. By virtue of the social structure there is no site, no obstacle, no decision, no decision-maker, that allows for dissent or assent in the maze of 'progress'. There are only extreme, and extremely one-sided, burdens of proof, thrust upon anyone who registers misgivings.

How is it possible that our society fails to recognize the vast challenges it faces. All past societies believed, always falsely, in their own immortality – while we Olympians of today have truly scaled the peak of development. Indeed, this is precisely what distinguishes our epoch from all others, none of which thought any differently. *Post-histoire*, the illusion of having reached the terminus of the history of societies, is in truth the most universally valid law of thought in history. The provincial self-consciousness of the age, its incapacity to look beyond the narrow horizon of the prevalent unquestioned assumptions, was and is the end-of-societal-history thesis.

Thus in the dim and distant past, people were commanded by empty stomachs and by custom to keep moving, in order to hunt bears and gather berries. At night, when the wood had again failed to catch fire, they may have mused: perhaps the alternative, sedentary life is feasible after all, and desirable. Then came the knock-down refutation: how is a settled person (who knows the nomadic way of life only from package tours) to feed himself once the bear has been bagged, and all the berries have been picked?

Hardly less convincing are proofs from agrarian societies that the hierarchy, power, inequality, poverty and splendour of the feudal order are the only possible form of life: where human beings become lords, peasants or serfs by virtue of birth, and thereby through God's

intercession, the social order is natural and therefore good (just as free-range eggs are better than battery-farmed eggs; or was that true only until the 'human failure' at Chernobyl, and untrue since?). The unquestioned assumption that one feudal society is always replaced by another is thus founded upon nothing less than the immutability of nature. To assume the contrary would be comparable to trying to leap out of the window and fly upwards.

For industrial society, the unquestioned assumption that every industrial society is succeeded by another is even more obvious. Our epoch distinguishes itself from all others in having replaced the principle of constancy by that of change. Since everything is in constant flux, the process is always more or less the same. After every industrial revolution, which turns upside down the conditions of industrial society as we have known it, the familiar forms emerge anew – classes or strata, competition for world markets; and, fresh as ever, the welfare state, the scientific attitude, the family, waged labour, the professions, businesses, industries, etc., with men's and women's roles perhaps losing a bit of their sparkle. That is, we have a social system which can perhaps be distinguished with scientific precision from its predecessor by its slightly higher level of industrialization.

The final and real reason for the immortality of industrial society, the one that will be examined here in detail, can be seen from the fact that now, in its current late phase, it has at its disposal, and has begun to utilize, the earth's mortality, together with everything that crawls on or flies above it. Our epoch has taken progress so far that a minimal exertion may relieve everyone of all further exertions. Ours is the age of the smallest possible cause for the greatest possible destruction. In accordance with the law of intransience of conceptual epochs, our era and its society have achieved and proved beyond all doubt the immortality of its way of living, thinking, working and running affairs; of its scientific, political and legal practices.

We have done away with life after death, and placed life itself under permanent threat of extinction. Nothing could be more transient. Yet we have done more: we have elevated transience to a principle of progress, released the potential for self-destruction from its restriction to warfare, and turned it, in manifold forms, into the norm: failsafe and ever more failsafe atomic power plants; creeping and galloping pollution; the latest creations of genetic engineering, and so forth. That is how we live at the summit of world history, where the future spreads out over the plain of the nothing new. More! Bigger! Keep it up!

The future of industrial society is industrial society, and the future of that is again industrial society. Just as the future of hunter-

gatherers is, was and always will be hunter-gatherer society, and likewise for the future of feudal society.

If this book nonetheless rebels against that iron law, the law of the eternal insuperability of the prevalent conceptual epoch in all human history, and does so solely by appealing to a human understanding distanced by the practice of sociology, I shall be taking upon myself an intolerable burden of proof. How is it possible to champion and vindicate historical appearance, of all things the most ridiculous and ragged of all excuses, against a hydra-headed social science armed to the teeth with expensive theories and figures? It is utterly impossible, and should therefore be held in this book's favour as a first mode of self-refutation.

For the record: whoever takes my arguments on board does so in spite of my own misgivings, and therefore on their own initiative and according to their own lights.

A major legacy of the industrial-capitalist colossus is the unbroken dominance of the false alternative: whoever disputes the rationality of science – so it is claimed – awakens the slumbering ghosts of irrationality. In the debate over the Enlightenment, one side defends the idea that the past has a future, while the other proclaims the end of the Enlightenment. In the name of what, or of whom this is done remains nebulous. Everywhere the same alternative is offered: either modernity or postmodernity. For or against. Yet even those who dispute the proposition hypostatize it into a constant, monolithic block. The idea of neither modernity nor postmodernity, however, the reality of the excluded middle, remains as alien as if it had fallen from another star.

The ensemble of identifications – industry = progress = science = enlightenment = modernity – is now in motion, with a continuity and momentum that determine industrialism's law of development. Therefore, neither these equations nor the positions of their critics are valid any longer. Even the most radical opposition – the condemnation of all that once meant and promised the triumph of reason, rationality, comprehension – is rendered conventional because it does not notice that its other, and hence its own self, has been deprived of co-ordinates. If this appraisal is correct, then social analysis must start afresh from its foundations, and on its methods of diagnosing the age. 'Some time or another', wrote Max Weber at the beginning of this century, 'the colour changes: the meaning of unreflectively adopted viewpoints becomes uncertain, the path is enveloped by darkness. The light of the great problems of culture has moved on. Then science too prepares to change its position and conceptual apparatus' (1968, p. 214). Max Weber's 'some time or another' is our present day, our aporia and our project.

The now false dichotomy between nature and society is at the heart of the first part of this book, which takes for its theme the aberrations to which speech and praxis in terms of the nature/society dichotomy lead today, when destruction and protest point to a common stratum, as yet unperceived, in nature and society. The result, as practically applied, is dead ends, variants of a systematically fomented fatalism, a fatalism of (post)modernity.

Antidotes, which are sought in the second part of the book, become discernible in the maze of false alternatives when what appears in the guise of 'natural destruction' is revealed as a social relation – objectified errors of naive industrialization, whose cultural sanction is being revoked; the threat to the existence of markets, industries and regions; the avoidable consequences of the organized non-liability that industrialism has become over the centuries.

To continue speaking of 'risks' in the case of reproductive medicine, and particularly of human gene technology, would be an anachronism, as chapter 1 demonstrates. The genetic code represents a unique field of operations. Repercussions, mistakes that develop here, change the biological constitution of living things, usually irreversibly. To that extent they can neither be treated as anonymous nor blamed on the 'environment'. The product itself is life – or quite the reverse.

Biologists and physicians are smuggling in a new age, swaddled in 'normality', beyond the limits of the acceptable. They seek shelter from unpleasant questions in giddy heights of abstraction. For example, they draw an analogy with cheese manufacture through the centuries, in order to establish a connection with preparations for rewriting the genetic text. Human nature, nature *tout court*, is becoming malleable beyond the limits of natural kinds. In the continuation of the Enlightenment to technological ends, the relationship between subjectivity and nature, between subjectivity and society, is placed at the disposition of society. In principle, subjectivity and society are becoming 'plastic' (van den Daele) – directly and without the intervention of executive or legislature, without the baffling profusion of judgements or conflicting interpretations – and sentence is passed in the sterilized biological and chemical laboratories.

Neither looking away nor cheering will help us: the successes of reproductive medicine and of (human) genetic engineering are bestowing upon us a eugenic age. Chapter 1 examines the possibility, now becoming a reality, of modernization reverting to barbarism. It explores the nightmare of my generation, the children of those who perpetrated and tolerated the Nazi terror, that its actions and omis-

sions will once again, in other forms and by other means, turn madness into normality.

The 'natural world', sapped by society and industrially endangered, has become the battleground for its own survival, as described in chapter 2. Yet the ecological movement remains trapped in a naturalistic misunderstanding. It reacts to and acts upon a blend of nature and society that remains uncomprehended, in the name of a nature no longer extant, which is at the same time supposed to serve as a model for the reorganization of an 'ecological society'.

This confusion of nature and society obscures from view another central political insight: the independence of destruction and protest. Protests against the despoliation of nature are culturally and symbolically mediated. They cannot be deciphered according to the calculus of hazards, for instance, as diagnosed by natural science, but must be interpreted through the inner and personal experience of social ways of life.

Naive naturalism and the technology of hazard hold everyday life, politics and the protest movement under their spell. It is the thesis of chapter 3 that they allow the establishment of the prevailing, extremely unequal burdens of proof and let the current, historically inapplicable rules of attribution go unchallenged. Large-scale hazards are not hazards-in-themselves, clearly to be grasped and delimited from normality on the strength of technological-medical authority. Rather, they are the concern of all, and in a new way. Manifold policies, cultural assumptions, mechanisms and rules are built into them: maximum pollution levels, rules of attribution, principles of compensation, acceptance, etc. To ignore this fact is to lose one's way in the labyrinth of provable unprovability that science and law have become, in their ahistoricism and incorrigible abstraction.

Once again, the canon of sociological classics blocks one's path at the outset of the search for antidotes in part II: Karl Marx's theory of capitalist exploitation and Max Weber's cage of bureaucratic subordination are only two milestones along the path to the dead end to which sociological thinking, with its excessive partiality to institutional objectivity, has condemned action. The tradition of intervention and resistance has wasted away, and is decaying into such conceptual ruins as 'class struggle', 'revolutionary subject', 'subjective factor', 'critical public opinion', a list which could be extended much further.

The problem of politically deriving a 'lever' for change is then resolved in chapter 4, paradoxically as it may appear at first. The real, most influential adversaries of the nuclear power industry, for

instance, are not social movements, campaigning journalists or dissenting experts. These are all indispensable, and their role in the past decade's ecological revolution of consciousness need not be minimized in any way to see that the most convincing long-term opponent of the nuclear power industry is the nuclear power industry itself.

Even if the institutions of hazard production and administration reign supreme and their 'symbolic detoxification policy' proves effective; even if social protest abates and its political scope remains circumscribed; all this can be shown, no less realistically, to be offset by the objective counterforce of hazard. The latter is constant, enduring, not bound to interpretations that deny it, and present even where the demonstrators have long since tired. The probability of improbable accidents grows with time and with the number of completed major technological systems; every 'incident' awakens memories of all the others, everywhere in the world. The world has become a testing ground for risky technologies, and thus also a potential refutation of the safety guarantees of state, economic and technical authority.

It takes only the suspicion of a catastrophe to bring about change in the security-state system of organized non-liability: the danger of annihilation dismantles the basic consensus that has until now put up with the internal and external conflicts of individual and common interests. The 'invisible hand' turns into an 'invisible saboteur', which cannot, or can only barely, be apprehended, and thus as it were 'covered', by the current categories of legal and scientific hazard assessment. Bertolt Brecht quipped that the sole difference between a bank director and a bank robber is that one steals people's money legally and continuously, while the other robs illegally and at intervals. This notion now applies to the incomparably graver case of the threat to life.

Large-scale hazards can thus be interpreted sociologically as a kind of revolution, become independent, which the conditions have instigated against themselves. The industrial dynamic finds its immanent 'adversary' in the virtually autonomous disclosure of hazards, depending upon (a) insidious, suspected disasters, (b) cultural sensitization, (c) the attentions of the mass media and (d) the resulting divisions and conflicts in the economic camp between those who profit and those who lose by the risks.

This political theory of major technological-ecological hazards is developed in chapter 4 as distinct from two positions – 'scientific objectivism about hazards' and 'cultural relativism about hazards'. The sociological objectivity of the concept of hazard proposed here is hence predicated not on technical alarms, but upon the institutional-

ized safety and control guarantees of the developed welfare state, which enter into contradiction with the bureaucratically perfected legalization of hazards. Policy, law and government have internalized the safety constructs of industry and of research technology, and are now squandering their authority as the error of the century within the technology-centred philosophy that guides them becomes ever more apparent. This estimation of a concealed, responsive self-politicization of hazards in public perception, politics and the hazard bureaucracy is worked out theoretically in chapter 4, with reference to Max Weber ('Purposive rationality and the rationality of risks') and François Ewald, who depicted the emergence and self-endangering of the 'assurance state'.

Like the hazards themselves, the social upheavals that result from their suppression and consequent outbreaks can no longer be delimited either socially or temporally. Science, and particularly technology, is only one of the areas where conflicts over progress erupt. For risks, which must now be calculated according to all the rules of the art, are a form of involuntary self-refutation of scientific rationality – as is shown in chapter 5. Not only is science internally divided, continually contradicting its own safety claims, but advances in the science of risk represent a decline of scientific authority on safety matters. Also, a science that extends its claims of accuracy to the investigation of repercussions, turns in fact into a theatre of the absurd: precision refutes precision. Risk calculations can be variously interpreted, and so they return full of mathematics and contradictory recommendations. These are supposed to manufacture acceptance, yet remain dependent on it. Maximum acceptable levels have to be fed into the calculations from which they are supposedly deducible.

Ultimately, danger, no longer subject to experimental logic, turns even that on its head: for nuclear power plants to be examined for safety, they must first be constructed. The application precedes the examination. The precondition for investigating their safety is that it will be confirmed. What this has to do with good old natural science is a ticklish question. In the field of large-scale hazards, the thoughts and deeds of technology and the natural sciences belong to distinct eras. Not its deeds, but only the representations of its deeds, can (perhaps) be justified by the canon of rules they call science.

The system of the economy (chapter 6) also gets ensnared and politicized in the contradictions of organized non-liability. Only in appearance, and for the producers of risk themselves, is the environment merely environment. From another point of view, in socialized nature the 'environment' is the economic basis of those industries and

regions that live off the commodification of nature: fisheries, the food sector, holiday resorts and tourist destinations, and also the trade sector and consumer goods industries. As the floodgates of poison open (through the absence of maximum pollution levels, inapplicable principles of causal attribution and juridical fictions), an explosive political situation emerges. In the omnipresence of harmful substances, a spark of information ignited by the mass media can destroy whole markets and industries. The victims cannot be specified or determined in advance. Where despoliation is unattributable, the economy, the public and the media begin to play Russian roulette under cover of the category of 'environmental' hazards deriving from a different age.

For all that the outcome is uncertain, the chances of being affected are very unequally distributed: this time, the 'proletariat' of risk society includes not only various kinds of worker, but also promising branches of enterprise, possibly even whole regions (states on the North and Baltic Seas, industrially undeveloped woodland regions). These have to pay with their economic lives for the legalized, total pollution that systemic unattributability conceals.

Here there are clear differences from the old class conflicts over the distribution of social wealth: if in those days labour and capital stood opposed to one another (and still do in this respect), the battle to distribute away the 'poisoned cake' turns capital against capital – and, consequently, occupational group against occupational group. Some industries and regions profit by this, others lose. But a key question in the struggle for economic survival has become how to win and exercise power, in order to foist on others the consequences of social definitions of risk.

There was a time, in the entrepreneurial paradise of early capitalism, when industry could begin projects without submitting itself to controls and agreements. Then came the era of state intervention, when this was possible only in consultation, and on a foundation of laws and regulations. Today even this will no longer suffice. Such arrangements can be negotiated and signed, but company managements feel exposed to further conflict, resistance, public denunciation and suspicion. These not only call into question the agreements reached on the basis of law, but exert unforeseeable and incalculable control even over the details (from waste disposal, through the material composition of products, to the details of manufacture) that were formerly the monopoly of technology and management. The defenders of the old order console and persuade one another that this is 'irrational' and 'ideological', a product of mass-media hysteria and

long-haired layabouts – symptoms which can be ‘cured’ at the next recession with the silent whiplash of economic circumstances. That is not so. First, it is far more the expression of a more developed democracy, where an expanded civic consciousness refuses to be excluded from participation without a fight – in making decisions that intrude upon our lives more palpably and hazardously than those susceptible to parliamentary measures. Second, they are simply indications of the range and political potential of industrial hazards. Unlike their early industrial forebears, these dangers are no longer restricted solely to the workplace or to the freedom of consumer choice, but also include the lives of all ‘third parties’, including generations yet unborn.

Such historic outbreaks of conflict cannot however be routinely packaged, as in the good old days, by means of new technology, then crowned with politically renewed safety pledges or sweetened by this or that law. They can be resolved only through historical learning processes and changes that perceive the secular error, and which this time aim to overcome organized irresponsibility, i.e. the power relations of definition (chapter 7). Ecological devastation and social divisions cannot in the end be wished away by gesture politics, the centralization of data or the creation of new government bodies. They can only be overcome by rules of decision-making that break up and democratize the concentration of power on questions of definition, because the problem of attribution can only be solved in this way. A change in the relations of production was required (through social insurance, rules for participation, union power and workers’ parties) for social modalities to emerge that made a regulated conflict possible. Similarly we will need new rules for consultation and decision-making, and a redistribution of the burden of proof – radical changes affecting the foundations of industrial production, as well as those of science, law and politics – to open up the possibility of no longer endangering, along with the environment, health, civic rights and related industries.

History teaches us that concentrations of power cannot be thus dispersed and democratized through questionnaires or by learned appeals to the understanding. It cannot be done without conflicts over progress, which owing to the universality of hazards are no longer restricted to one area, but penetrate every region and level of society. The technocracy of hazard and its advocates must fry in the purgatory of their false safety pledges. Thus no help is to be expected from a kind of ‘political acupuncture’ (although a politics of multiple precision jabs can be very effective). Nor will some ‘revolutionary

subject', this time perhaps eugenically improved, drop it into the laps of those who wait. Nor will it result from the ardent hope for reason, discourse and openness, indispensable to be sure, but no more than that. If the analysis presented is correct, then we should not think and act in the opposing categories of politics and citizens, of bureaucracy and social movements. We should put the totality of bureaucratic-industrial-political supremacy, with its immanent division into the heralds and the transgressors of safety standards and life-norms, at the centre of an oppositional politics. This will derive its power not only from within, but from the political adroitness with which it exploits institutionalized political schizophrenia, so that under the prevailing universal imperative to protect life, the contrary practices that endanger and destroy it will be found out and made public. In other words, one must bring out the implications of the insight that the nuclear power or chemical industries etc. are their own most powerful and enduring adversaries. For example, by taking at its word the chemical industry's claims, published in full-page advertisements, to be the very quintessence of concern for humanity, one might bring it to bay by following up its own errors. So that the evangelists of ecological ethics – as our fallen brothers of the chemical industries have to style themselves with the discovery of each new ecological sin – finally provide the criteria and clues that convict them of their sins. It is clear that the rules of the game will have to be changed. How that may be done will be revealed only in the final section, and even there only incompletely.

At the end of their treatises, in which the inevitable end (of industrialization, civilization, humankind, life on the planet) is convincingly depicted if not proved, they always tack on a chapter in which they stress that there is another way . . . which curiously puts into contradiction the appalling prophecy of disaster and the harmless exhortations with which we are let off. This contrast is so glaring that each side of the argument damages the other. At least one of them sounds unbelievable: either the closing sermon that would reassure us, or the analysis that seeks to terrify us. (Enzensberger 1973, p. 32ff)

Many people justly noted and criticized the same imbalance, clearly an occupational hazard of sociology, between the diagnostic analysis and the little chapter of hope at the end of my book, *Risk Society: Towards a New Modernity* (1992). One is naturally reluctant to formulate an answer to the question on everyone's lips: what are we to do? Perhaps, on the contrary, one is too ready to oblige in this learned milieu, in which the problem of a new world order consists

principally in its formulation. While higher and higher levels of hazard become the norm, and while safety levels progress ever upwards, our lives continue ever more normally, ever more hazardingly. Under these conditions, the question about the meaning of 'What is to be done?' has already been answered.

The paradoxes of this question have split this book and maintained the split between 'Dead Ends' (part I) and 'Antidotes' (part II). This dilemma continues, even though the book's title and the sequence of chapters might appear to indicate the contrary.

The argument of the book can only be as powerful as the reader judges it to be. I have evaluated specific cases and empirical data, where these were available and accessible to me, and articulated alternative theses. Yet a great deal remains speculative. That is not my fault alone, but is also due to the state of research into the social sciences, which have not exactly been keen to pursue the questions thrown up here. To put it bluntly, I am perhaps the least certain participant in the uncertain science with which I deal. The lack of ifs and buts in the formulations is a question of style. Let this fact be taken out of parentheses and writ large once and for all.

Yet the uncertainty of all claims to knowledge, as revealed to consciousness by thorough inquiry, need not end up as pussy-footing. This book also intends to demonstrate that. Anyone who has grasped the fragility of what is most certain can fall silent, turn cynical, get into a rut – or else take the opportunity of transforming prevalent concepts, once having discerned their fallibility. If we are correct in asserting that the self-endangering, 'civilized' world is no more than a (disproved) hypothesis that we have not yet put behind us, now is the time for the counter-hypothesis. The error to which the ossification of scientific concepts leads can only be broken up by an interplay between the internal and the external, with the courage that draws its strength from the will to know.

After the technological and scientific superstition that keeps this age in its thrall, though now under the tyranny of self-destructiveness, perhaps some old-fashioned enlightenment can begin anew. Preparing for this has generated the pleasure, the rage and the profound pessimism that animate this book.