RISK AND CULTURE

An Essay on the Selection
of Technological and Environmental Dangers

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and

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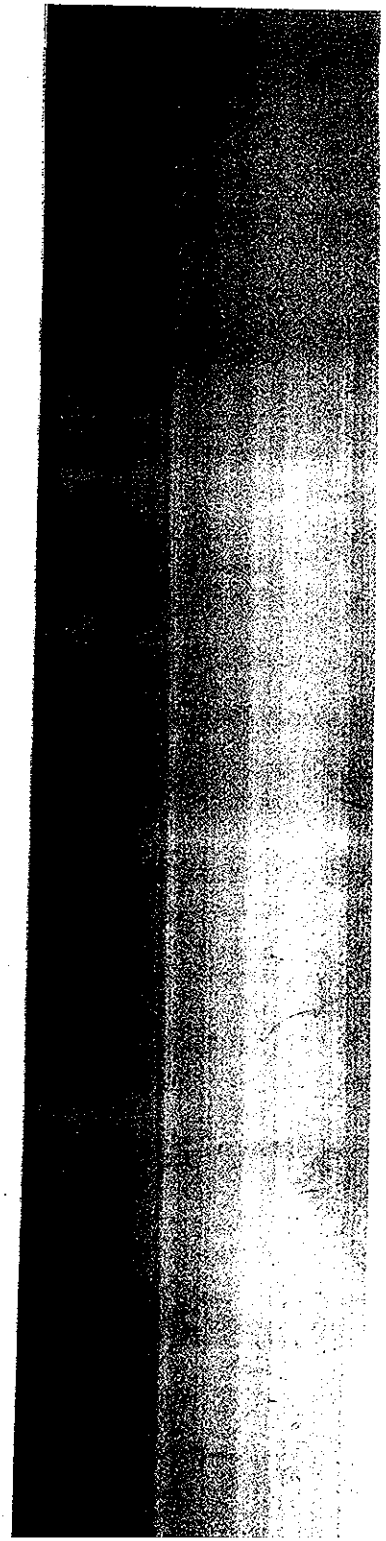
For Dean Neubauer
who brought us together



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But wretched Man is still in arms for Fear.

From fear to fear, successively betrayed—
By making risks to give a cause for fear
(Feeling safe with causes, and from birth afraid)

—William Empson, *Reflection from Rochester*

Introduction:

Can We Know The Risks We Face?

Can we know the risks we face, now or in the future? No, we cannot; but yes, we must act as if we do. Some dangers are unknown; others are known, but not by us because no one person can know everything. Most people cannot be aware of most dangers at most times. Hence, no one can calculate precisely the total risk to be faced. How, then, do people decide which risks to take and which to ignore? On what basis are certain dangers guarded against and others relegated to secondary status?

The current consideration of risk has three peculiarities. The first is that disagreement about the problem is deep and widespread in the Western world. The second is that different people worry about different risks—war, pollution, employment, inflation. The third is that knowledge and action are out of sync: whatever programs are enacted to reduce risks, they conspicuously fail to follow the principle of doing the most to prevent the worst damage.[1] In sum, substantial disagreement remains over what is risky, how risky it is, and what to do about it.

Are dangers really increasing or are we more afraid? Undoubtedly people and the environment face risks from technology. The perils of nuclear wastes and carcinogenic chemicals

are not figments of the imagination. Undoubtedly, also, we benefit from technology. Life expectancy continues to increase; accident rates and infant mortality are way down. Are the dangers worth the advances? Do we make too much or too little of such risks and benefits? Different groups give exposure to toxic chemicals vastly different significance. Fear of risk, coupled with the confidence to face it, has something to do with knowledge and something to do with the kind of people we are.

At the level of public policy the main dangers can be grouped into four kinds:

1. foreign affairs: the risk of foreign attack or encroachment; war; loss of influence, prestige, and power;
2. crime: internal collapse; failure of law and order; violence versus white collar crime;
3. pollution: abuse of technology; fears for the environment; and
4. economic failure: loss of prosperity.

Do those people who worry about the future worry equally about all four kinds of risk? A Harris survey on attitudes about risk—among the general public, corporate executives, and federal regulators—demonstrates the diversity of perspectives. The Harris findings show that twice as many people in the general public (as compared to executives) think that there is more risk in society today than 20 years ago. As for domestic political instability, 61 percent of both the public and executives feel there is more risk; but only 34 percent of the regulators agree with this. In regard to danger from the chemicals in use, however, almost 3 times as many executives (38 percent) as the general public and the regulators (13 percent each) think there is *less* risk today than 20 years before. Comparing regulators to executives, 41 percent of the latter felt the greatest risks facing the country (in March 1980) were the economy and energy; only 10 percent of federal regulators gave the same response.[2]

At the elite level of public debate, the actors—political parties, interest groups, government officials—do not uniformly attach the same dangers to different objects. People

who are most concerned about attack from abroad, for instance, tend to be less worried about pollution at home. Those who would take strong steps to counter violent crime in the streets are not as passionate about the effects of inequality of income. Why not? The two trends may well be connected.

The mark of an intelligent man, it is said, is that the more he learns, the more he becomes aware of how much more there is to know. The advance of science increases human understanding of the natural world. By opening up new realms of knowledge, however, science simultaneously can increase the gap between what is known and what it is desirable to know.

What would be needed to make us able to understand the risks that face us?—Nothing short of total knowledge (a mad answer to an impossible question). The hundreds of thousands of chemicals about whose dangers so much is said are matched easily by the diversity of the causes of war or the afflictions of poverty or the horrors of religious and racial strife. Just trying to think of what categories of objects a person might be concerned about is alarming. Indeed, it might be better for mental health to limit rather than expand sources of concern. Since no one can attend to everything, some sort of priority must be established among dangers; otherwise, merely counting risky objects would leave us defenseless.

Ranking dangers (which is what risk assessment requires) so as to know which ones to address and in what order, demands prior agreement on criteria. There is no mechanical way to produce a ranking. As Jerome R. Ravetz, a philosopher of science, puts it:

> The hope that one can produce a taxonomy, evaluation, and finally a technical fix to the problems of risks is in substance as ambitious as the program of putting all of human experience and value onto a scale of measurement for mathematical or political manipulation.[3]

Because no one knows it all, there can be no guarantee that the very dangers people seek to avoid are those that actually will harm them most. Moreover, successful surmounting of one

danger is not always a good omen. Success may lead people to relax their guard in overcoming adversity. Then, the next unexpected danger may do them in. As Ravetz reminds us,

> risks are conceptually uncontrollable; one can never know whether one is doing *enough* to prevent a hazard from occurring. Even after a hazard has occurred, one is still left with the question of how much more action would have been necessary to have prevented it, and whether such action would have been within the bounds of "reasonable" behavior.[4]

Even in the distant future, when the record of these times is more complete, historians undoubtedly will differ about whether our generation might have taken different, safer paths. Yet, act we must, not knowing what will happen to us along the path we choose to take.

When one enlarges the question to ask about which kinds of risks are acceptable to what sorts of people—the prime political question—the uncertainties surrounding current knowledge are multiplied. A comprehensive study of acceptable risk by Baruch Fischhoff, Sarah Lichtenstein, and Paul Slovic concludes that acceptability is always a political issue:

> That choice depends upon the alternatives, values, and beliefs that are considered. As a result, there is no single all-purpose number that expresses "acceptable risk" for a society.
>
> Values and uncertainties are an integral part of every acceptable-risk problem. As a result, there are no value-free processes for choosing between risky alternatives. The search for an "objective method" is doomed to failure and may blind the searchers to the value-laden assumptions they are making. . . .
>
> Not only does each approach fail to give a definitive answer, but it is predisposed to representing particular interests and recommending particular solutions. Hence, choice of a method is a political decision with a distinct message about who should rule and what should matter.[5]

Since there is no single correct conception of risk, there is no way to get everyone else to accept "it."

No person can know more than a fraction of the dangers that abound. To believe otherwise is to believe that we know (or can know) everything. Yet even if we did, it would still be necessary for us to agree on a ranking of risks. In the absence of complete knowledge, and in the presence of disagreement between scientists and laymen alike, how can anyone choose to zero in on any particular set of dangers? How, faced with endless possibilities, can anyone calculate the probabilities of harm (the risks)?

Risk should be seen as a joint product of *knowledge* about the future and *consent* about the most desired prospects. This enables us to put the problems into perspective.

CHART A

FOUR PROBLEMS OF RISK

Consent \ *Knowledge*	Certain	Uncertain
Complete	Problem: *Technical* Solution: *Calculation*	Problem: *Information* Solution: *Research*
Contested	Problem: *(dis)Agreement* Solution: *Coercion* or *Discussion*	Problem: *Knowledge* and *Consent* Solution: ?

When knowledge is certain and consent complete, when objectives are agreed and all alternatives (together with the probability of occurrence) are known, a program can be written to produce the best solution. The problem is technical and the

solution is one of calculation. In the next instance—knowledge certain, but consent contested—the problem is one of disagreement about how to value consequences; here the solution is either more coercion or more discussion. In the third case, complete consent hampered by uncertain knowledge leads to the problem of risk being defined as insufficient information; hence the solution is seen as research. Looking at the way governments handle controversies over risk in Europe and America, Nelkin and Pollak observe:

> If lack of confidence is thought to be a problem arising from insufficient technical evidence, then the goal is to ascertain "scientific truth." This leads to a structure based on scientific advice to public representatives. If the controversy is defined in terms of alienation, a more participatory or consultative system is developed. And if the problem of public consensus is defined in terms of inadequate information, it is assumed that people oppose technologies because they are poorly informed. The task then becomes one of "education."[6]

The last situation, in which knowledge is uncertain and consent is contested, is precisely how any informed person would characterize the contemporary dilemma of risk assessment.

What can reduce the need for new knowledge and at the same time focus attention on a few critical subjects? Only social consent keeps an issue out of contention. The perception of risk is a social process. All society depends on combinations of confidence and fear. Learning about fear ought to afford a backdoor route for understanding confidence. Some fears are physical, some are social. Perhaps physical fears would not threaten to overwhelm citizens who felt confident of justice and social support. Perhaps people are not so much afraid of dying as afraid of death without honor. In addressing questions of acceptable risk without considering their social aspects, we could be speaking to the wrong problems.

The different social principles that guide behavior affect the judgment of what dangers should be most feared, what risks are worth taking, and who should be allowed to take them. In Zaire the Lele people suffered all the usual devastating tropical

ills—fever, gastroenteritis, tuberculosis, leprosy, ulcers, barrenness, and pneumonia. In this world of disease, they focused mainly on being struck by lightning, the affliction of barrenness, and one disease, bronchitis; they mainly attributed these troubles to specific types of immorality in which the victim would generally be seen as innocent and some powerful leader or village elder would be blamed. In other countries the prevailing culture promotes a different selection from a similar range of hazards. Sometimes, instead of pinning the blame on the village elders, it rather enhances self-blame: in those cases a disaster is the victim's own fault. Whether blaming the elders or blaming the victim, the type of society generates the type of accountability and focuses concern on particular dangers. Much as in biology, the cultural theory of risk perception which will be developed in these pages sees the social environment, the selection principles, and the perceiving subject as all one system. It does not ignore the reality of the dangers around. Plenty of real dangers are always present. No doubt the water in fourteenth century Europe was a persistent health hazard, but a cultural theory of perception would point out that it became a public preoccupation only when it seemed plausible to accuse Jews of poisoning the wells.

A cultural approach can make us see how community consensus relates some natural dangers to moral defects. According to this argument, dangers are selected for public concern according to the strength and direction of social criticism. Death and disease statistics are mobilized for justifying the criticism. Why is asbestos poisoning seen to be more fearsome than fire? Asbestos was developed to save people from burning; asbestos poisoning is a form of industrial pollution whose toll of deaths by cancer justifies a particular anti-industrial criticism more strongly than does loss of life by fire. Similarly, there is no obvious way in which the incidence of skin cancer caused by leisure-time sunburn can be mobilized for criticism of industry, and so we hear less of it. We shall show that this connection between perceived risk and moral blame does not reduce the selection of dangers to political analysis. At the

same time politics must not be avoided. A cultural theory of risk perception would be trivial if it shirked considering the distribution of power in relation to the pattern of risks incurred by Americans. Our guiding assumptions are that any form of society produces its own selected view of the natural environment, a view which influences its choice of dangers worth attention. Attribution of responsibility for natural disasters is a normal strategy for protecting a particular set of values belonging to a particular way of life. Consequently, research into risk perception based on a cultural model would try to discover what different characteristics of social life elicit different responses to danger.

This book is about how particular kinds of danger come to be selected for attention. We could have chosen to discuss perception of the risks of poverty or of war, but it is not an encyclopedia. Our book is about why, at this time, pollution has been singled out for special concern. Our answer will be that the choice of risks to worry about depends on the social forms selected. The choice of risks and the choice of how to live are taken together. Each form of social life has its own typical risk portfolio. Common values lead to common fears (and, by implication, to a common agreement not to fear other things). There is no gap between perception and reality and no correct description of the right behavior, at least not in advance. The real dangers are not known until afterward (there always being alternative hypotheses). In the meantime, acting in the present to ward off future dangers, each social arrangement elevates some risks to a high peak and depresses others below sight. This cultural bias[7] is integral to social organization. Risk taking and risk aversion, shared confidence and shared fears, are part of the dialogue on how best to organize social relations. For to organize means to organize some things *in* and other things *out*. When we say, therefore, that a certain kind of society is biased toward stressing the risk of pollution, we are not saying that other kinds of social organization are objective and unbiased but rather that they are biased toward finding different kinds of dangers.

How do we choose which risks to face? We choose the risks in the same package as we choose our social institutions. Since an individual cannot look in all directions at once, social life demands organization of bias. People order their universe through social bias. By bringing these biases out into the open, we will understand better which policy differences can be reconciled and which cannot.

Each side in the current risk debate is thought by the other to be serving interests of preferred social institutions. Whether the reference is to the industrial establishment or the "danger establishment" that lobbies against it, each takes the arguments of the other to be self-serving and therefore false. Cultural bias is much more complicated. What to do about it depends, first and foremost, on learning to recognize it.

To ask which is the correct description of rational behavior (that is, to ask what the real risks are) leads to an answer which finds irrational bias and misperceptions of real interest in the viewpoint of anyone who disagrees. Instead, cultural analysis shows how a given cluster of values and beliefs makes sense out of the various positions people take and the practices they employ. To what beliefs and values would members of society most readily refer in order for that kind of society to have credible, coherent institutions?

Once the idea is accepted that people select their awareness of certain dangers to conform with a specific way of life, it follows that people who adhere to different forms of social organization are disposed to take (and avoid) different kinds of risk. To alter risk selection and risk perception, then, would depend on changing the social organization.

Questions about acceptable levels of risk can never be answered just by explaining how nature and technology interact. What needs to be explained is how people agree to ignore most of the potential dangers that surround them and interact so as to concentrate only on selected aspects.

Let us try it another way: the key terms in the debate over technology are risk and acceptability. In calculating the probability of danger from technology, one concentrates on the risk

that is physically "out there," in man's intervention in the natural world. In determining what is acceptable, one concentrates on the uncertainty that is "in here," within a person's mind. Going from "out there" to "in here" requires a connection between the dangers of technology and people's perception of those risks. Neither the one approach (that the perils of technology are objectively self-evident) nor the other (that all perceptions are subjective) can connect the two. Only a cultural approach can integrate moral judgments about how to live with empirical judgments about what the world is like.

To develop the argument, we turn to a cultural change that has taken place in our own generation. We begin with a sense of wonder. Try to read a newspaper or news magazine, listen to radio, or watch television; on any day some alarm bells will be ringing. What are Americans afraid of? Nothing much, really, except the food they eat, the water they drink, the air they breathe, the land they live on, and the energy they use. In the amazingly short space of fifteen to twenty years, confidence about the physical world has turned into doubt. Once the source of safety, science and technology have become the source of risk. What could have happened in so short a time to bring forth so severe a reaction? How can we explain the sudden, widespread, across-the-board concern about environmental pollution and personal contamination that has arisen in the Western world in general and with particular force in the United States?

Our argument is that a complex historical pattern of social changes has led to values that we identify as sectarian being more widely espoused. The sectarian outlook has three positive commitments: to human goodness, to equality, to purity of heart and mind. The dangers to the sectarian ideal are worldliness and conspiracy. Put into secular terms, worldliness appears in big organization, big money, and market values—all deny equality and attack goodness and purity; conspiracy includes factions plotting secret attack, transporting evil into an essentially good world. Infiltration from the evil world appears as Satanism, witchcraft, or their modern equivalent—

hidden technological contamination that invades the body of nature and of man. We shall argue that these ideals and these dangers respond to the problems of voluntary organization: they are the daily coinage of debate in groups that are trying to hold their members together without coercion or overt leadership. The remedies most easily proposed in such organizations are to refuse to compromise with evil and to root it out, accompanied by a tendency toward intolerance and drastic solutions. These organizations depending on the voluntary principle also tend to reject wealth. Nature in the wild, uncorrupted by social artifice, equivalent to a society without social distinction, is their preferred emblem of godliness and symbol of unworldliness. Before developing this cultural explanation of the current directions of risk aversion, we should consider some rival theories.

A favorite explanation for the intense new interest in risk is that the United States is richer and Americans can now afford to be more cautious. Lester Lave writes:

> Although no evidence exists that Americans have become sated with the products of the U.S. industrial economy, it is natural that they should want a more pleasant environment, lower risks associated with their products and work places, and general health improvements to accompany their increases in real income. What appears to be a paradox ["that Americans are safer now than ever before, but at the same time they are more concerned about health and safety than ever before"] is resolved by recognizing the rapidly increasing desire for lower risk.[8]

After all, this argument runs, the more people have, the more they can lose. Once people have satisfied their main material wants, from cars to television, they can concern themselves with safety. So far as it goes, this explanation is plausible. We do more for self-protection because we are able to do it. Safety is presented as another consumer good, part of general material advance. But is it true that richer people are more averse to risk? If that is so, why are they not risk averse to economic disaster, crime, and war? Why do they select technological

rather than other kinds of risks? Even more fundamentally, why should the success of a way of life generate self-doubt among its adherents? Success could more likely be expected to generate confidence in more of the same. The problem is not merely a rise in the value of safety. There is the proposition that affluence has bred distrust of the culture that created it. Where does this idea come from?

The proliferation of research on risk has called forth various sociological theories about the sources of public concern. Divisions among the general public are scanned to see whether changes in income, education, or rural and urban dwelling patterns can account for changing public judgments. It is reported that public-interest groups tend to be run by individuals in the professional and managerial occupations with higher-than-average income and education. More to the point —this is true of leaders everywhere—their rank and file are more educated than is the general public.[9] Such observations lead to a variant of this explanation: education itself has bred a social conscience.

It is plausible that the most alert watchdogs on behalf of society should come from the most educated classes. But this in itself does not explain why the last twenty years should have seen the change and why concern should take this particular direction. For education to explain the new attitudes toward risk, one would need to indicate some threshold at which the educated elite tips over from unconcern to concern. This is provided by Maslow's theory of stages of wants.[10] When struggling for bare survival, according to Maslow, the individual has a narrow perspective; his political demands are material, for food and shelter. With industrial wealth guaranteeing economic well-being, the individual looks around for forms of personal expression and personal freedom. At a more developed stage of the economy, the individual can afford the luxury of a social conscience; at this point altruistic concerns come to the surface. Hence the growth of public interest lobbies, and so on. Still this does not explain the selection of

risks. Why is social conscience concerned with environment and not with the education of the poor or relief of the indigent?

Since they no longer need to worry about the safety or sustenance of their bodies, the educated public can presumably satisfy what Ronald Inglehart calls nonmaterial needs for group identification and for self-realization.[11] Their aims are not for more income, but for a high quality of life, including democratization of work. At this stage what people most want is a sense of individual control over social forces. This want is so imperious that their demands tend to be "non-negotiable."[12] Thus Inglehart uses Maslow's stages to explain a new era of public sensitivity to oppression and of concern for fellow men on an international scale of comparison. The idea is pleasing. It supposes that the social classes least motivated by concern for public welfare are only those less prosperous. All people would be speaking for the public interest if they were fortunate enough to have solved their material and money needs. One might naturally expect public-interest groups to concentrate on spreading prosperity. Psychology, however, seems to be against the theory; so does history. It is easy to think of extravagantly affluent civilizations where the elites were not at all public-spirited.

Maslow's argument supposes that a mood of public altruism is generated by the sheer material successes of industrial development. The empirical difficulty is that altruism is not a post-industrial monopoly. Most nonindustrialized cultures have their equivalent of public-interest watchdogs, however low their level of poverty. It is hard to name a time in the last 100 years, moreover, when Western industrialized society was not rich enough to qualify for the last altruistic phase, whose predominance among us now needs to be explained. What is it about affluence now and security now that is different? According to our argument, advanced technology is not the explanation. There is no unequivocal body of evidence that life is (or is becoming) less safe; on the contrary, such tentative evidence as there is leads in the opposite direction—life is

growing longer not shorter; health is better not worse. We get more insight from asking why certain risks get selected from the range of dangers that always threaten. This question points to the growth of sectarianism as a more convincing answer.

The organization of this book reflects the kind of question we ask: What sort of people would use risks to nature to get other people to change their ways? If we asked, "What has modern technology done to nature to cause so much concern?", we would concentrate on evaluating the scientific evidence about environmental damage. Instead we begin by analyzing the arguments connecting technology to environmental decline—risks are hidden, involuntary, and irreversible—in order to show that the judgments are essentially social rather than scientific. One response to this thesis is that we modern people see things differently precisely because we share an empirical, evidential, scientific ethos. In order to show that risks are socially selected, in our second chapter we compare "advanced" views with those of "primitive" peoples. Readers are welcome to see if they can discern differences between "us" and "them" in the way that dangers are selected for public concern. Even if we were all scientists, the third chapter shows, we would be no nearer agreement because scientists themselves are as divided on risk as are the rest of us. Nor will the procedures of risk assessment help in this regard, the fourth chapter asserts, because all modes of assessment are biased by the social assumptions they make. Having done our best to dispose of the contention that selection of dangers could be determined by direct assessment of the physical evidence, we begin to develop the case for social selection of risk. Chapters five through seven argue that each culture, each set of shared values and supporting social institutions, is biased toward highlighting certain risks and downplaying others. Along the way, we mix examples of risk selection among people like ourselves and people such as the Amish and the Hutterites, contemporaries who have a strange appearance to the modern eye. One reason for doing this is that these peoples and their cultures have a pronounced identity, so they can be readily described. A more important

reason lies at the heart of our position: If risk and culture are related in the ways we claim, then these relationships should stand out among the most diverse people way back when and not only among us moderns here and now. Since this is a book that explicitly aims to explain us to ourselves by making explicable heretofore puzzling phenomena—the rise of alarm over risk to life at the same time as health is better than ever before—we go on to apply our cultural theory to American conditions. We end by considering the policy implications of the cultural selection of dangers, denying that it forces us to adopt an unscientific posture and affirming our capacity to cope resiliently with risk.