Ecological Communication: Coping with the Unknown¹

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There is growing concern with how science and modern society can cope with major problems, especially those of an ecological kind. This has grown in parallel with a skepticism which questions our processes of rational decision making, questions our ability to plan, and questions our cognitive capacity for prediction and directing action. Faced with these problems, the scientific establishment demands more investment to increase levels of knowledge. It maintains that we can change and master the environment. But the way forward is to recognize the increasing uncertainties we face. Some theoretical development is possible in this area owing to the study of risk, but this needs generalizing to the level of society. An attempt is made in the final section to assimilate this particular theoretical approach with ideas in evolutionary theory.

KEY WORDS: science; systems theory; uncertainty; communication; evolutionary theory.

1. INTRODUCTION

My starting point for this discussion is to consider some of the ideas we have about the contribution of Science to problems of social welfare, or problems associated with the environment. It is important that I begin by outlining some ideas about Science. I think it would be fair to say that, even today, we remain firmly rooted in what one would call the Cartesian or Baconian tradition of Science. This tradition is of course highly successful and it accords well with certain visions, descriptions, and beliefs about modern society. It is a modern society that is successful in terms of welfare, successful in terms of legal certainty, by virtue of the fact that we can walk the streets in relative safety, and successful in terms of intimate relations. When we distinguish our society from older social formations, we can see how elaborate it has become and witness

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its many possibilities and opportunities. Furthermore, we appear to be very proud of the differences we have achieved over and above the more traditional societies.

Despite this outlook, there can be a certain narrowness in believing in science and its contribution to modern society's accomplishments. For one thing, scientists very much organize themselves around internal differences and not around the difference between science and society. Those internal differences are very much part of the Baconian–Cartesian tradition. They are Baconian in the sense of looking at empirical facts; Cartesian, in the sense of looking at internal differences with theory and method, and combining these in some manner. If, on the other hand, we view Science as a system (as a subsystem of society), it becomes apparent that there is a lack of knowledge of, and a lack of reflection upon, the difference between system and environment. Indeed I have a feeling that it was concentration on the endogenous aspects of Science that made us optimistic. There has been a lack of reflection about outside effects, for example, in the reception of Science in everyday social life. This lack of reflection makes us, or has already made us, far too optimistic about what Science can achieve.

However, this optimism has tended to decline and is matched by a change in the intellectual climate. I wish to make several remarks about these less optimistic or—as some would say—pessimistic views about modern society. My account will have a sociological intention and will bring different indicators to light which I will then reflect upon. It is different because I cannot assume that this decline in optimism is the result of some kind of diffusion process, i.e., where somebody first became skeptical and this in some way spread. Indeed, there are different sources for this particular kind of experience, that is, the experience of declining optimism or, as some might argue, increasing pessimism.

One such idea of how our society, or for that matter our intellectual community, becomes skeptical can be traced to postmetaphysical philosophy, which renounces a clear distinction between being and not-being without reflecting on the question "Are there any reasons why we should take this distinction and not another?" We are now trying to work through the consequences of this breakdown in ontological reasoning, which was really already there in Kant: to work without a clear distinction between being and not-being. This takes us back to ultimate paradoxes and we tend to recognize that there are no good beginnings to found our knowledge. In fact all we have is the paradox itself. The paradox is that we do not know whether what we know about not-being is being or not-being. These terms of course are Greek inventions. We have the paradox stemming from Greek thought, on one side, and the ontological tradition, on the other, and their links seem to be no longer present in our contemporary philosophers. Of course, we are aware of its history, but the predicament of present philosophy—if we take Heidegger and Derrida as examples—is that

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we are concerned with founding knowledge on the unfolding of paradoxes. The beginning is the paradox then, and in some way one must try to escape it. There are various ways of trying to escape it and yet everything remains contingent because we necessarily have to begin from a paradox.

There is a second way in which modern society, or our intellectual community, becomes skeptical about the origin of knowledge. It emerges from our understanding of epistemology, a term which was invented in the last century and is rather like Erkenntnistheorie. Epistemologically speaking, there seems to be a shift from the methodological preoccupation with how to achieve and elaborate sound knowledge to a constructivist approach which has as its basis systems theory-and this is again a paradox because only closed systems, only systems which have no contact with the environment, can organize cognition. This idea of closure should not be treated as giving rise to a problem of how a system can get out of itself; rather, closure or no contact is a condition of success. This type of theory has its parallels with neurophysiological research. For instance, the brain, of course, can have only internal operations. We cannot get outside of a completely closed system like the nervous system or language. And since we have to use our brains in Science, in Science too we stay within a system. This suggests that epistemological research now has a lack of confidence in itself, or a lack of confidence in its traditional foundations.

It is along these lines that we could mention a theory of art which would act as a testground for our conception of society. Since the romantics and the avant-garde there have been attempts to eliminate the distinction between reality and art. Fantasy, fairy tales, and mirrors all became notions of romantic art. Yet nowadays we are constantly testing whether we need a distinction between art and nonart by producing works of art. There is much evidence of where nonart is claimed to be art. This testground shows that boundaries are constantly being disputed not only by philosophers with respect to knowledge, but by the production of works of art such that the boundary of art changes its identity. The emergence of atonality in music is a good example of one of these movements. Similar disputes about boundaries can exist in terms of the grounds for knowledge.

2. DECISION MAKING AND UNCERTAINTY

My next point is concerned with a theory of rational decision making. Once again, we find a tradition which says that the environment is sufficiently ordered, so that if we examine it, we can know exactly what it consists of. It is open to us and apparent by itself. Even where we have disregarded this way of thinking, roughly in the seventeenth century, we have remained confident that the environment will always prepare our decision making for us. For example, we have always thought that the market would allow us to make decisions about prices, and yet during this century we have seen that our conviction in the market has become more and more questionable. We only have to witness the proliferation of complex research into the study of firms and their markets to see evidence of this. Finally there emerged a solution to the theory of rational decision making via the idea of making distinctions. Distinctions are like decision premises because they have to be fixed somehow or other, and in all likelihood they are actually set by other possible decisions. What happens is that decisions and rationality are restricted to a narrow field of decisions, thus moving away from contemplation about the premises of decision making. And this of course gives rise to the discussion of how organizations provide guidance. It also tells us something about the way offices can make decisions. This particular topic is very much alive in Germany at the moment. It is concerned with the distinction between decisions and what we might call the process of uncertainty absorption. If you connect several decisions together, then the connection itself cannot be understood as part of the decision; this connection merely occurs independently of other decisions. For instance, someone can examine a piece of information and draw a conclusion. This can then be communicated, and the next person can receive this communication without necessarily reflecting upon its original formulation. Such a process can evolve to form a chain of uncertainty absorption or correlatively, certainty construction. Working through the complexities of this way of thinking is being researched at Bielefeld. It includes the study of risk research and conflict, and the circumstances in which uncertainty is absorbed or certainty is constructed. Eventually, and with the use of systems theory, we come to the point that recognizes that the environment must be ordered in some way because systems are forced to reduce complexity. This is also commonly accepted in terms of the cognitive theory of Psychology-Jerome Bruner and his colleagues (1956) have recognized that there is no point-for-point correlation between a system and its environment. A system can never have sufficient variety to match in a point-for-point fashion the possible states an environment might exhibit. The environment is much more complex. It therefore requires a selective process and we must question what type of organized selection is possible given these circumstances.

Now the consequences of this way of thinking, together with developments in many other traditions of intellectual thought, lead us to the point where we recognize increasing doubt about our competence for handling the problems of modern society. Indeed, we seem to have doubts about our cognitive capacities for handling such problems because clearly we do not possess the cognitive means for predicting and directing action. The establishment immediately reacts to this by demanding more research. But more research requires more investment, and if there is a lack of funding, then society believes it will lack sufficient knowledge. On the other hand, we have also experienced that more knowledge can mean increased demands for further investment in order to achieve even more knowledge. This happens because when we have more knowledge or more insight, we also recognize that which we do not know. Thus, our picture of the problem changes shape as we begin to recognize a growing number of problems and seemingly less solutions. What appears to emerge from this process is an increased awareness of the relation between knowledge and a deficit in knowledge. It is also an indicator that there is disappointment about the role of Science within society. I shall return to this point, but before I do, it is crucial that I draw your attention to my understanding of society and the role that communication plays within a theory of society. This is important, above all, because the topic of communication is central to much contemporary debate.

3. SOCIAL COMMUNICATION AND IRRITATION

I have used recent developments in systems theory, particularly those ideas associated with how a system produces and reproduces itself in order to achieve an understanding of society. A system does not have an own essence; it should not be treated as an object exhibiting its own peculiar characteristics. Rather, it should be seen as something which, through its own operations, produces and reproduces a difference between the system and an environment. It continues to produce this difference by using the distinction itself, which allows it to distinguish what is internal to the system and what is external. By using this approach it is possible to rewrite the theory of evolution by explaining those systems that emerge and, in the course of achieving this, are able to maintain themselves successfully. One such system is life itself. The biochemistry of life can reproduce life within a living cell or within a living organism, using its own components to produce continually those components and constitute in the space where they exist the boundaries of the system. Life is indeed a good example. The biochemistry of life forms the operation which makes a difference between an organism and its environment.

With this theoretical structure in place, the nagging question becomes "Are we able to find a similar type of operation which produces a social system?" It is my opinion that only communication can be considered as a serious candidate accounting for the production and reproduction of social systems. We cannot rely on the concept of action because this depends too much on the process of attribution and constantly sees the individual as a determinant actor. Communication, on the other hand, is inherently social and thus it follows that society is composed of communications among human beings.

We can define society as the all-encompassing social system that orders all possible communications. This necessitates that we must exclude everything but communications from our concept of society. This means the exclusion not only of such natural facts as islands, oceans, and technologies, etc., but also of human beings, i.e., concrete individuals and their conscious processes. These aspects all belong to the environment of the social system of society. They must remain aspects of the environment; otherwise we could not formulate communication as the fundamental social operation which accounts for the production and reproduction of society. If we are going to analyze the environmental relations of the system of society, we cannot include psychical processes and individual conscious activities as definitive parts of society. Nor is this particularly necessary since communication can take place without us knowing what is happening in the minds of those with whom we choose to communicate.

Social systems use communications by highly selective processes. With the use of communications, we can question and answer, understand and misunderstand. Again, this type of thinking has links with research in neurophysiology and research concerning the biochemistry of cells. If we consider the concept of operational closure which has been explained in cognitive theory, we can appreciate that operational closure is an achievement of system building. This is not to say that operational closure allows us to isolate a system so as to study it and generalize about its regularities through the observation of its inputs and outputs. We might have cause to attribute many different regularities and causal relations, but only the system itself can produce its own operations. The system is sovereign with respect to the construction of identities and differences.

My next step in this argument requires a decisive conceptual innovation because we have to ask, "How under the conditions described above can we think about the relationship between a system and an environment?" There is a concept in the writings of Humberto Maturana (1982) which allows us to appreciate the relationship between a system and its environment. It is the very technical concept of structural coupling. It is vital because it can explain how organisms are able to survive given the physical conditions imposed by the earth. For instance, if temperatures were slightly different, or if the planet was either very large or very small, then we could not survive. This way of thinking should not imply that our movement is determined by physical forces in a deterministic way. Certainly, we can decide where to go so long as it satisfies the condition of structural coupling. And it follows that if we drastically change the nature of this structural coupling, then we might endanger ourselves to the point where we are unable to survive. This is roughly what Maturana's work tells us, and I would like to add the important dimension that structural couplings are highly selective, including but also excluding influences of the environment on the system.

If this type of thinking is applied to ideas about communication, it prompts the question—What are the structural couplings of communication? We have already argued to the effect that psychical and conscious activity is not part of the social system. This allows us to reformulate a theory of society in terms that dictate that the processes of societal communication depend upon structural coupling with consciousness. To reiterate, consciousness is not part of the sys-

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tem; it is an essential environmental condition. We can certainly acknowledge that conscious activity operates in all communications, but it does not determine communication—it can only irritate communication processes.

Normally we think that conscious activity tells us what to say and what not to say, but the theory I am proposing here suggests that communication itself decides what can be communicated. The human conscious aspect exists to irritate or to make problems for the system. It forces the system to adapt or preadapt to potential irritations. For instance, I have to adapt my argument to the possibilities of it being understood. There may indeed be difficulties in being understood, but the system somehow arranges itself in view of these irritations provoked by consciousness. It is difficult to assume that a human can communicate as an actor; for example, you might consider that the way in which I am now communicating to the reader would definitively make me the communicating subject. But to explain the process of communication in this way is unsatisfactory. It makes use of a rather artificial and causal assumption, adjudging me as the communicating actor. This is difficult because the recipient of communication knows nothing of my personality and can tell little of what I am actually thinking. Nevertheless, we can continue to communicate, and during this process we will inevitably produce understandings and misunderstandings.

So far there are two important aspects to this evolving theory. First, I mentioned that structural coupling can explain why consciousness can irritate but not determine communication processes. And second, because we know that communication is structurally coupled with consciousness, this tells us something about selectivity. It suggests that there is a vast environment which has no access to communicative processes. In fact there are only two accessible routes by which communication can be accessed or "changed." One, of course, is through the idea of irritation; the other is destructive of possible communications. For instance, we can spill ink on a manuscript, but this does not create any new text; it just makes existing text illegible. Similarly our libraries might be burned down but in the ashes we do not find any new messages. It seems that there is a great deal that can destroy communication processes, though we still have recourse to the irritation of such processes via structural couplings with consciousness.

With this theory in place, we can see how society might possibly react to such areas of concern as ecological problems. I have explained how society organizes and restricts itself to particular communications. Individuals have the opportunity to irritate these societal communications, but bearing in mind that the population of the planet amounts to some 5 billion people, we need to understand something of the content of these communications and who actually communicates them. Evidently it is a question of how an individual can communicate the communications that he or she sees. At this juncture I will elaborate a little more on the notion of structural coupling and the implications of operational closure.

Consciousness can be said to be coupled tightly to the brain. The brain constantly requires living cells, and these in turn require a working organism to continue, and so the organism is structurally coupled with its environment, and so on. The point is that these relationships are highly selective and are the result of evolution. In point of fact, the relationships between systems and their environments are much more complex and much more artificial or improbable. This is of course a long way from the conventional idea that human beings can get together and talk about action and then reflect on the quality of this action.

4. COPING WITH THE UNKNOWN

I now wish to tackle the subtitle of this discussion, "Coping with the Unknown." It should be clear by now that owing to the theoretical development I have put forward here, I am also skeptical as to whether we can possibly cope with the unknown or, more precisely, that we are able to integrate what we know and what we do not know and use this as a difference we can introduce into the social system of society. To begin, we must acknowledge that modern society offers more knowledge than any other previous society with respect both to persons (via the discipline of psychology) and to outside conditions (via an understanding of ecology). Thus, in terms of the concept of structural coupling, communication benefits in the sense that we know much more about individuals and their psychology, and this has led to an understanding about advertising and the role it plays in influencing people. Similarly, the language of Psychology has been popularized and it allows people to talk with other people about others. With outside conditions, i.e., Ecology, we know much more than any other society before us. We even seem to know to which current ecological conditions we are structurally coupled. We also believe that the stratosphere is made up of about 200 different chemical compounds. We do not know how all these compounds interact but we recognize that they all have different rates at which they can be absorbed. Changing one particular compound might not mean anything, but at other times a threshold might be exceeded. Amidst all this we believe that something could happen, something untoward, but we do not know exactly, and we do not know under what conditions this will happen. Suddenly we can begin to recognize the relationship between increasing knowledge and increasing nonknowledge.

It should come as no surprise, then, that we know a great deal about individuals and about ecological conditions because it is a point that is recognized by systems theory. Systems are operatively closed and they concentrate on boundary maintenance. Despite this we seem to be at a loss when it comes to changing either persons or ecological conditions, because this involves predicting the consequences of communicative effects on individuals and the likely effect of human activity on our physical, material world.

The problem might be understood in terms of the relationship between the social system and individuals and the relationship between the social system and ecological conditions, both in view of other possibilities. We are under the constant illusion that we can influence individuals via the social system, and in some senses, this is indeed the case. One way in which we can influence individuals is through organizational membership, where individuals subject themselves to authority relations and rule systems. This has the effect of influencing individual behavior. Our organizations are highly successful in this respect. By being part of them, we can achieve much more than if we were alone and purely governed by our own motives. The influence that our organizational activities have on our behavior are brought to mind when we consider our preoccupation with attending conferences and faculty meetings, for example. On many occasions we feel obliged to attend, and quite often the experience is terrible. All attendants appear to suffer, but everyone attends and their own work is temporally put aside. This type of organization has a powerful influence on behavior. In such circumstances we all begin to communicate; we communicate our presence and our attentiveness irrespective of what we are thinking or have on our minds.

So the communication system begins to self-organize by appropriately influencing individual behavior in a certain manner which allows the social system to reproduce itself. We still cannot adequately change individuals however. We certainly have considerable experience of Psychotherapy, Family therapy, etc., which are attempts to change individuals and their behavior, and these disciplines are a tribute to the power of professional organization. But many interventions of this kind end in disappointment. These attempts to change a state of affairs or to change the participants in such affairs are renowned for their failure. To be fair, there are occasionally some unexplainable successes as well. The therapy business establishes its reputation by being a profession and not on its methods of intervention and its techniques. It begs the question, How do these therapy activities survive in light of their lack of success and their substantial disappointments, together with their unexplainable successes? Furthermore, why are people still keen to support these services?

It is becoming clear that there is a difference between influencing people and changing them. It is also becoming more apparent that we lack the required knowledge that would enable us to change people. This is reassuring because if we did have such knowledge, then everyone would be engaged in trying to change individuals, and I would be unnerved by the idea that someone exists who knows precisely how to change me. There is something very positive to be said about our communicative processes, then. It allows a degree of political freedom because nobody really knows how to change their fellow humankind. Additionally, you cannot adapt to the necessities of the communicative process and still "be yourself."

This covers the human side and its relationship with the social system. We must also say something of ecological conditions, because these too are blighted with similar illusions and problems.

We believe that we have techniques for influencing and changing outside ecological conditions, just as we thought with consciousness. It follows that we think that if we do something to the environment, and this intervention does not violate the laws of nature, then we will be successful. Much of our modern scientific research shows that our techniques and technologies are defined by tight coupling, and even if we adopt a ceteris paribus clause, we are still expectant that the intervention will have the desired effect. Our ecological research, however, demonstrates that the stability of the environment or, to be more precise, ecological equilibrium depends not on tight coupling but on loose coupling. Thus if we continue to believe that a certain cause precedes a certain effect and calculate the probability of this event, we are not necessarily improving our knowledge of outside conditions. If, instead, we assumed that organisms are loosely coupled to their environmental conditions, then we could assume that an organism can survive a great deal of change or that it can adapt to certain changes by finding a new equilibrium.

Therefore, as soon as we examine how social operations can change other systems, be they a person via consciousness, or an organism, or any kind of physical or chemical equilibrium, we perceive that we do not know how to do it. All this may seem very clear and obvious, but we should cultivate the awareness of the idea that what we have before us is a mixture of knowledge and nonknowledge.

The question that I would like to raise from this analysis is: How can our society, at the end of this century and millennium, adapt to the fact that it does not know how to handle outside systems? To be clear, we have to find a way which avoids the Cartesian-Baconian confidence in more knowledge and, instead, allows us to maintain or even cultivate uncertainty in matters of both cognition and action.

A body of knowledge called risk research addresses some of these issues. Its efforts are focused on the risk assessment of high-risk technologies and how we could possibly handle the decision making which has to be taken in respect of these technologies. Risk research is an isolated strand of research which makes it difficult to connect or generalize within the problematic of society, but it does recognize, and this is crucial for the purpose here, the ubiquity of uncertainty. So how might we handle this uncertainty? How might we prevent somebody from saying he or she knows what is what because he or she claims "I know, I am an expert" or "I have good contacts with research institutes?" Some time ago, prior to the Rio summit on the environment, a number of people

called into my office and asked "We know that a catastrophe looms, why doesn't anybody do anything?" Under the assumption that "We know," these people wanted to interview Chancellor Kohl and various other officials to find out the reason why nothing was being done. Yet these very same people knew nothing about the 200 or so chemical compounds that allegedly make up the stratosphere. Instead, certain information upset them, and they demanded to know why society fails to react and, in particular, why those with responsibility and authority fail to act. This type of climate, I believe, is unfavorable inasmuch as it could lead us in the wrong direction. Arguably, it is politically dangerous too.

There is also a reluctance to grasp uncertainty within scientific and technological society as well. Scientists regularly comment to the effect that "We have everything under control, we know exactly what happens, that this or that process is not dangerous because there are built-in safety devices." We are told that certain operations have always been undertaken without any deleterious effects. Naturally we are told to be quiet and we are instructed not to worry.

The intellectual climate must change so that uncertainty is recognized on both sides of this divide. It is not a question of who has the better knowledge or who has the most appropriate experts. This means that, if in certain situations, someone explains, "I know," then there is the possibility that this person is wrong. He/she must return to the sources of his/her knowledge in order to supplement it with uncertainty. On the other hand, if on every occasion we were to say, "We don't know," it would be increasingly difficult to make a decision. In these circumstances we must find a way of making preferences through selective findings which allow us to make reversible decisions without assuming to know what actually happens. This will provide a network of information that we can change should new information come to light that has a bearing on decision premises.

If one examines how economic business uses predictions, we see that predictions are constantly changing. The prediction always remains a prediction. The future never comes; it is always a future (Luhmann, 1982). We are always in a present and the future is a shifting horizon. Every day we will propose new futures based on predictions of what that future will hold. This is the value of prediction, because we know for the time being what to change and how to change. Take, for instance, the prediction of business cycles, currency problems, inflation, and unemployment rates. If, in Germany, we were able to predict unification, we could have run this as part of our predictions because of its political relevancy. Unification could not have been predicted yet we still have this network of information and we are constantly looking for new information to change our predictions. We do have some techniques and know-how to cope with this problem of uncertainty, though we must allow for the fact that it has been developed in a rather isolated branch of knowledge. I am confident that our success in dealing with uncertainty has more to do with time than with assured real knowledge of real conditions. At this point in the argument I am at a loss with the English language because there is no equivalent for the German word *sachlich*. The English words substantial, material, and objective do not precisely correspond to what I actually want to say, so I will proceed with sachlich.

I feel we have to compensate this lack of sachlich with temporal elasticity. We can allow for this by cultivating a culture of risk taking and risk control. At Bielefeld we have conducted some research into risk control and banking (see Baecker, 1991). Nowadays banking operates in a completely different environment from the one in which it operated 20 years ago. Such things as new financial instruments, the computer, and more volatility are aspects of its environment. Competition is important too. For instance, German banks compete with Italian banks in Italy, and not only for German customers. In order to handle risks we expected that the organization would show some kind of awareness. But this did not happen; instead the organization did not change, but the techniques it used did. Meanwhile the banking business witnessed new developments in risk control. The American bank Morgan is famous for these developments. However, all this research points to isolated experiments in specific situations. Some were more successful and more innovative; others were less so. What we really need to do is to generalize these findings and bring them to the cultural level of general social awareness.

5. CONCLUSION

Everything I have said so far has been a preamble to what I now want to say. This is the outcome of increasing research into the combination of system theory and evolutionary theory. A Darwin-type theory of evolution was based on the distinction of variation and selection, and the system was taken for granted, e.g., living bodies of different animals or different plants. But today the system component in evolutionary theory has become much stronger. We find that evolution continues to support very simple systems and, especially, those that vary to only a small degree. Most systems, however, have in fact been destroyed by evolution. Most living species which existed are now extinct and this all happened before the industrial revolution. So evolution is highly improbable then. Many improbable and increasingly complex systems survive but a good deal simply vanish. This all depended, in the case of human society, on a sufficient number of societies. Not all segmentary societies developed into high culture; perhaps only 20 or 30 developed in this way, and some of these stagnated. European society, on the other hand, became "hot," so to speak.

Today, however, it is arguable that there is only one world society. This is discussed in sociology under themes such as the global system. Societies still are defined by territorial distinctions. We often say that Greek society is different from that of Turkey, for instance. Yet increasingly we are coming around to the idea that there is only one world society. We recognize this in terms such as the mass media, or economically, or in terms of political interest. Today there is worldwide interest in the way states are organized, for example, where it is difficult, as in the former Yugoslavia, the former Soviet Union, or some African countries.

There is, in effect, only one world society. Differences in the life conditions of South America, Europe, Japan, and Taiwan, for example, could be explained by the rational decision processes which make up this world system, especially of course with reference to decisions made in the economic system. But then we have to contemplate the possibilities for evolution occurring with one case only. Could this really be feasible? We might decide that this does not provide hope for our survival chances. And we have lost our faith in planning. The tendency with evolution theory in this century has been to demand a new evolutionary ethics together with effective planning which would guarantee the survival of the human species. It was not sociologists who shouted this message; on the contrary, it was biologists such as Huxley who promulgated the idea. Today, of course, we are disappointed with our ability to plan and we have developed a strong mistrust in the idea that the political system should plan our lives. So, just at the time we most require planning, we oppose it because we know it doesn't work. Alternatively, we have evolutionary theory which attempts to explain present society and how present society progresses into the future: but now with one case, the world society, only-and this situation has never existed in the past. How can we cope with the unknown?

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