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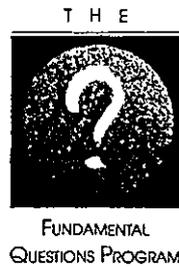
Environmental management  
and the political philosophy of trust

Fundamental Questions Paper No.6

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School of Science and Technology Studies  
University of New South Wales

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FUNDAMENTAL  
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# Environmental management and the political philosophy of trust

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## Introduction

I have been examining questions arising in the societal management of science and technology – which for convenience I am going to lump together as ‘technoscience’ – particularly in regard to risk and uncertainty as social rather than technical phenomena and in relation to environmental management. This examination has brought into juxtaposition in a rather unfamiliar way a number of literatures and approaches including:

1. those concerning the social constitution of the everyday world, of *ego* and of *alter ego*, and the development of what George Herbert Mead called *the generalised other*;
2. the ingredients of what Husserl and later Habermas called the ‘lifeworld’, and the relations within it of aesthetic, moral and cognitive rationalities;
3. in particular, those concerning the connections between the lifeworld and those social entities which have been characterised by functionalist social theorists like Parsons and Luhmann as ‘social systems’;
4. the presence and the management of risk and uncertainty both within, and between, ‘system’ and ‘lifeworld’; and
5. the implications for questions of contemporary political theory and practice.

Several of these themes refer to the point of departure both for much of the material and of the intention of Habermas’ recent writings, and of the response to Habermas of French writers like Foucault (eg. Morris, Patton 1979) and Lyotard (1984), and of the liberal pragmatists like Rorty (1982) in the United States. I want to suggest here that we need to extend these analyses and others in relation to environmental management specifically to include the concept, the function and the constituents of *trust*, especially concerning to the production, dissemination and control of technoscience. For this, I will be arguing, it is necessary to re-open issues of social and political theory which have been largely unfamiliar to modern writers for over two centuries, and for which it is useful to re-examine certain aspects of the work of Hobbes and Locke and the experience of the English Revolution.

Now, it will be obvious from the outset that, at most, my discussion can only attempt a rough sketch of the connections between these diverse fields.

Moreover, a discussion of these themes, of the sort I have in mind, will imply some familiarity with developments in contemporary social theory and philosophy over about the last twenty years. Since I cannot assume this familiarity, even in so distinguished an audience as this one, I am, it would seem, baulked at the outset. But, casting around in this desperate fix, I decided that I should try to do two things which might at least persuade you that, firstly, I am pointing to a road which may be worth mapping,

and, secondly, to pin-point what are some of the features of interest which such a map would display.

## Some presupposed ideas

First, then, why should we be bothered at all about what social theory has to say? I think there is a relevant answer to that question. It may well turn out in the fullness of history that Taoism, deep ecology, Buddhism, sacred land attachments and other cosmologies which are being raised at this catholic colloquium will prove increasingly apt to our global condition; but that condition, and the condition of the biosphere, is a result of the twinned processes of the global search for autonomous knowledge, which I am calling technoscience, and, secondly, of the deployment of that technoscience within, indeed as a necessary constituent of, the global social and economic system of capitalism, with its cultural and ethical norms and values. Each of these processes has objectified the social entity we call 'the individual', a development which has led to a long chain of political procedures, rights, and institutions – positive law, the franchise, the State, etc. It is to this which Jean-Francois Lyotard is referring when he says that modernity – Western society over the last two or three hundred years – has been organised under the two Master Narratives of Emancipation and Enlightenment (Lyotard, 1984).

When we say we have an environmental 'problem' what we are pointing to is that the social controls over the knowledge sub-system, or over the economic sub-system, or both, are permitting those sub-systems to produce unwanted environmental results; and to the extent that the problem is chronic, then it may be regarded as systemic, though I don't want here to be too precise about the word 'systemic'.

We cannot opt out of that condition: there may be other ways of organising our participation in the biosphere, but to get there from here we need to have a good account of where we are; and this is not simply a matter of 'know thy enemy'; it is also necessary to 'know thyself'.

It is for this reason that social theory is relevant, since it sets out to make sense of the Western contemporary predicament, and its crucial place in the whole modern world, using the insights and the labours of nearly three millenia.

And it is for this reason that Jurgen Habermas, the German sociologist and philosopher, who is very well known in Europe and the United States, but not so well here, has attracted so much interest. In the opening sentence of his first major work, 'Knowledge and Human interests' (1972), first published in German in 1968, he said: 'I am undertaking a historically oriented attempt to reconstruct the prehistory of modern positivism with the systematic intention of analysing the connections between knowledge and human interests'; and he went on to say that 'the analysis ... should support the assertion that a radical critique of knowledge is possible only as social theory'.

This research program has oriented Habermas' enterprise and it has guided his engagement with past writers, in particular, Marx, Nietzsche, Peirce, Mead, Freud, Durkheim and Weber, and with modern scholars, in particular Gadamer, Popper, Wittgenstein, Parsons, Luhmann, Giddens, Rorty and Foucault, and many other writers in economics, sociology, language theory and philosophy. He was motivated in part, along with others of his generation, by a desire to undo the plight into which German philosophy had been brought by the association of some of its leading figures, in particular, the 'politically unambiguous' Heidegger and Gehlen (Habermas, 1986), with National Socialism. The research program has resulted in a series of major works in the form both of Habermas' writings and the records of his debates with others. Even if, or, indeed, where, one is unpersuaded by the thrust or the specifics of these powerful 'reconstructions' and 'rationalisations' of major themes of Western thought, anyone engaged with contemporary issues of the environments and society can scarcely ignore them, or the wide-ranging debates which Habermas' reflections have provoked. The records of these debates (eg. Thompson and Held 1982, Bernstein 1985) are reassuring and informative documents of current intellectual life. As long ago as the early 1970s, Habermas said,

If economic growth is necessarily coupled to increasing consumption of energy ... then [it] must result, in the long run, in a rise in global temperature ... it is not easy to determine the critical time period empirically ... nevertheless, these reflections show that an exponential

growth of population and production ... must some day run up against the limits of the biological capacity of the environment. (Habermas, 1976, 42).

And he went on to relate this to the logic of capitalist growth:

A shift from unplanned, nature-like capitalist growth to qualitative growth would require that production be planned in terms of *use values*. The development of productive forces cannot, however, be uncoupled from the production of the *exchange values* without violating the logic of the system. (ibid).

But if these few remarks must go to express as well as they can the salience of approaching environmental issues from the basis of a systematic attempt to come to terms with contemporary social reality, what is it that I can say briefly that will clarify some of the essential foci of that approach?

Michael Pusey, in his compact and accessible introduction to Habermas' work (Pusey, 1987), lays some weight on the 'German-ness' of his thought, and the difficulties of the language, which, in many respects, Habermas has quite self-consciously constructed. It is certainly true that for the English speaking reader these difficulties exist, and similar ones also apply in respect of the French post-structuralists, like Foucault, and are much reduced when the thought is expressed in the form of interviews or essays (eg. Morris and Patton 1979, Thompson and Held 1982, Habermas 1976). But the particular issue Pusey is addressing is the difficulty for contemporary Anglo-Saxon audiences of reading Habermas because of differences in intellectual culture. These audiences, while they may be post-empiricist in temper, are still much influenced by the pre-suppositions of Humean causality in their understanding of the *social sciences*, and Habermas' difficulties for them stem from two principal areas of pre-supposition.

The first of these is that Anglo-Saxon audiences tend to pre-suppose an empiricist notion of 'weak' reason 'where the term "reason" is normally reduced to refer only to a specific argument or inference properly framed in terms of the rules of evidence' (Pusey, 1987, 15) – say, of scientific enquiry. Habermas, on the other hand, is writing within the German tradition of

'strong' reason, which has its roots in Greek philosophy, which was concerned from the beginning with the explanation and conduct of human life; here 'Reason' (with a capital R) may be regarded as 'the guide, the premise, the common ground, of all particular reasons' (Pusey 1987, 16), and, in its strongest version, such as Marx inherited, is the 'creative potentiality of the species subject'.

I only want to record this point here, and cannot take it further, and I think that rather more has been made of it by various writers and critics than is necessary: the difference between German/French and Anglo/American approaches to these questions, and their certainly *is* a difference, has not prevented highly informative and mutually enriching exchanges between Habermas and many Anglo-American thinkers. It is necessary to recall, nevertheless that, as Habermas said in the opening sentence of his first book, his critique was directed *in the first place* at the foundations of positivism, of Humean empiricism, and at its function in the social sciences as an ideology objectifying human relationships.

The second area of presupposition is again one in which substantial differences have been pointed out between German and English thought – the priority given to the individual or the collective. Again, Pusey has noted that in British and American social and political philosophy from Hobbes and Locke through Bentham, 'the individual has a clear primacy' (Pusey, 1987: 16); while in the German tradition from Hegel to Marx 'it is natural to think of the individual as an instance of a collective and even of a transcendental history-making subject' (Pusey, 1987, *ibid*). While these differences certainly also exist, we presume that the social reality of the species has had common sources and constituents, on whichever side of the Pyrenees; and, indeed, Habermas finds very pertinent formulations among scholars writing in the English tradition, such as the 'linguistic turn' of the later Wittgenstein, and the 'speech act theory' of the Englishman, Austin, and the American, Searle. In particular, he takes the account of social genesis, which he seeks as a foundation stone for this theory of communicative action, in the social psychology of the American, George Herbert Mead, widely recognised as one of the founding fathers of modern sociological thought. His writings at the University of Chicago in the late nineteenth and

early twentieth centuries led to very significant uptakes in social theory and philosophy, not least by Habermas. Now, I can here only attempt to display those elements of this theory which are especially necessary to establish a first base for the principal themes of this paper. And to do that I am going to quote, in the most lapidary fashion, some passages from Mead which Habermas uses in the basement of his construction.

Firstly, Mead argues that 'language has constitutive significance for the biocultural form of life' (Habermas, 1987: 4). 'In man', said Mead, 'the functional differentiation through language gives an entirely different principle of organisation which produces not only a different type of individual but also a different society' (Habermas, 1987, *ibid*). Secondly, Mead starts from an interaction in which at least two organisms react to one another: 'we are not, in social psychology', Mead says, 'building up the behaviour of the social group in terms of the behaviour of the separate individuals composing it; rather, we are starting out with a given social whole of complex activities, into which we analyse (as elements) the behaviour of each of the separate individuals composing it' (Habermas, 1987, *ibid*).

And the final quotation I make comes from that part of Mead's expositions where he has traced and reconstructed the phylogenesis of social action coordinated by signal and grammatical languages, and he is outlining the ontogenesis of the self mediated by grammatical language in the processes of socialisation: 'A person', Mead says, 'is a personality because he belongs to a community, because he takes over the institutions of that community into his own conduct ... There are certain common responses which each individual has toward certain common things, and insofar as those common responses are awakened in the individual when he is affecting other persons he arouses his own self. The structure, then, on which the self is built in this response which is common to all, for one has to be a member of a community to be a self' (Habermas, 1987: 24). What could be clearer English than that!

This community, and all its language practices and cosmological presuppositions into which we are born, is a lifeworld, a notion I shall be taking about in this paper, and which as Habermas says, is 'always at our back'. It is these presuppositions, unquestioned and often

unquestionable, which we trust, and the constitution of *trust* is my major theme. It is from out of the experience of the lifeworld that we call, in the last analysis, the reasons for action, and to Locke's discussion of the necessity for 'reasons for action' I will be referring in conclusion. Habermas, as I have noted, has located the reasons for social action in the context of the lifeworld mediated by language, and the focus of his effort has been to analyse and establish the conditions of communication and its role in social action and social integration and, hence, in conflict resolution and societal management. He has therefore explicitly outlined a framework to which the constitution of trust could be referred, but he has, in fact, nowhere specifically analysed the question of trust, while one of his principal critics and interlocutors, Niklas Luhmann, has done so (Luhmann, 1979) from a very different point of view, and I will be discussing that monograph later.

With these preparatory remarks, about some of the notions and the issues which are presupposed in the discussion, I want to proceed to the first point of importance for this paper, the political credibility of scientific demonstration.

## The political credibility of technoscience

Why is it that, in many cases, so much scientific argument, evidence, proofs and appeals to authority, in whatever conditions, carry little conviction with people at large?

I will be arguing that, for political and sociological theory, in particular in relation to public policy, a crucial consideration in responding to this question is not the cognitive status in itself of scientific demonstrations but that, over wide reaches of public life, we have to take them *on trust*, and hence the key question is, what are the conditions for the bestowal of trust?

It is now something of a truism that there is a crisis of confidence in various areas of scientific and technological practice, that alongside the great dependence and priority given to the scientific and the technological – its valorisation, as the French say – there exists an extensive scepticism, distrust, and even fear of scientific and technological institutions and their practitioners. In this antinomy lies one of

the most contended areas for modern society and the modern state, and since trust, rather than knowledge, provides the basic cement of society, as I shall be discussing later, it is all the more surprising how rarely the theme of trust appears in either intellectual or policy discourses. What is this thing called trust? And what is the relation between trust and knowledge? Between trust and belief?

These questions are especially current in many environmental issues and since the environment is touched at many points by technoscience, the social relationships engendered and implicated in environmental discourses spill over into many areas of technoscience. These relationships are those of the everyday world and it is there that I want to start.

## Trust and the taken-for-granted

The concepts of common-sense knowledge, taken-for-granted-ness, personal and social trust, have been the subject of social theory since Durkheim, and, in particular, Simmel (1950), who first outlined, around the turn of the century, much of what was later taken up by others, in particular Mead (1934/62), Husserl (1970), Schutz (1973), Heller (1984), Garfinkel (1964) and their followers, and more recently by Habermas.

In this sociological tradition there are three approaches to the question of commonsense reality, and each characterises a particular mode of access to it.

In the first mode, that of *homo faber*, we carry out unreflectively all the acts through which the world is realised for us. We experience the 'thusness' of the anonymous world and objects 'are', rather than are 'seen as', ie. they are 'taken for granted' and are saturated with familiarity.

In the second mode, that of pragmatic naturalistic philosophy and the sciences, we accept as a starting point the shared world, a world of inter-subjectivity and communication and seek to develop, by processes like induction and deduction, higher order explanations of the 'facts' of the commonsense world. This mode has, until recently, formed the mainstream of modern philosophic and sociological interest in the Anglo-Saxon countries, and I will not canvass it further here.

The third approach, that of phenomenology, seeks to understand the constituents and constituting processes of everyday life, and considers the socialisation institutions, social control and the means of communication. In this view, our 'we' relations are developed through experience of *alter egos*, producing a world of common experience, constituted in various levels of mutual awareness which are not all face-to-face. Schutz pointed to our expectation of the interchangeability of viewpoints, what Garfinkel later called the three constitutive expectancies of everyday life. These are: 'the person takes certain features (of the world) for granted; assumes that the other person does the same; and assumes that, as he assumes for me, I assume also for him. That is, if they were to change places each would see events in the same typical way' (Garfinkel, 1963: 210).

In the commonsense world so constituted in awareness, expectancies and presuppositions, the commonsense actor has a stock of knowledge which various writers have classified into two parts: first of all, it has *fundamental* constituents comprised of the enduring elements of everyday life, which we experience as stable objects, such as the circumstances of our location, companions and surroundings at any particular time.

Secondly, there are *routine* constituents which are comprised of those skills and useful knowledge with which we live and accomplish everyday life – books, furniture, sciences, recipes, etc. An actor at any time has available a stock of knowledge which consists of (*his or her*) *stock of knowledge on hand* and (*society's*) *knowledge at hand*, and contains

1. the fundamental or universal elements, for example, the sky above;
2. the routine or habitual, routine elements or cultural items – things, customs, language, for example, our talking together;
3. the knowledge of a unique biography, that is, the actor's personal autobiographical experience; and
4. the specific knowledge of the present situation as a unique instance of its type – for example, our sitting in this room as one of a set of such sittings.

Another structuring aspect of commonsense life,

according to Schutz, is that it consists of *finite provinces of meaning*, relating consciousness, forms of sociality, time perspective, and shared beliefs concerning the nature of the world – the family, the work group, the golf club, the scientific discipline, etc.

Our experience of the commonsense world and its constituent provinces of meaning rests on presupposed notions of continuity and repeatability – what Schutz called the *et-cetera* and the *again-and-again*; that is to say that, while accounts, for example, of the outcome of a football match or of a scientific experiment may not capture all aspects of the situation, they describe all the major points for the particular purpose on hand and the remaining undescribed items form part of a continuum described as the *et-cetera*; and, secondly, that the experiences could be repeated *again-and-again* – not that particular grand final, when Canberra won, or that particular reading of the instrument, when we were ‘demonstrating’ Boyle’s Law, but other, anonymous ones, unmistakably members of their types. Very importantly, the world of commonsense experience is given as a ‘*typified*’ world, and types result from repeated, familiar experiences and expectations of continuity and anonymity. Thus, a visitor from Mars, or even from Melbourne, might have no understanding of what is going on at a rugby grand final; and similar considerations apply to other more ‘objective’ less ‘cultural’ phenomena. *The unfamiliar always arises within a field of the ‘familiar’, the problematic within a matrix of the unproblematic.* The everyday world is, then, in large measure an *objectified* world, that is, composed of items many of which are culturally constructed and variable, and may upon reflection and analysis be shown to be so, but which, for the particular purposes on hand in the everyday world, are accepted as naturalistically objective and invariable (Misgeld, 1983).

Thus, in the phenomenological approach, the epistemic constants of daily life include:

1. the general thesis of the natural attitude;
2. the idealisations of continuity, and of repeatability, ie. of *et-cetera* and the *again-and-again*;
3. the general thesis of reciprocity among social actors of objectives and of viewpoints, the *constitutive expectancies*.

These are presuppositions of daily existence, for their continuation cannot be questioned, and *are taken for granted*. Taking for granted is an achievement of prereflective and reflective participation in a socio-historical world. It depends on the achievement of familiarity through typification, and has, as we have seen, contents at two levels, the fundamental and the routine – that is, firstly, those kinds that cannot be questioned, and secondly those that have been culturally produced, which include those whose cultural construction we are aware of, and others of whose construction we are unaware. The relations between the two types of contents (especially as experienced through language) – the more or less fixed, and the more or less variable, the fundamental and the routine – have been a matter of considerable debate. Simmel, who introduced the categories, spoke of the metaphysical and the *epistemic*. Schutz called them the *universal* and the *cultural*. Garfinkel carried out his famous experiments on the ‘breaching’ of trust. Heller introduced the Hegelian categories of the ‘*in-itself*’ and the ‘*for itself*’. The analysis of the distinction is significant for the sociology of the technosciences but we cannot pursue it further here.

## Personal trust and system trust

Through all of this world run the threads of taking for granted and of trust which permit us to sustain our experience and conclusions from one set of typifications to the next confirming or denying ones: a universal theme, indeed, but, until very recently, the only monograph wholly devoted to the topic of trust came from Niklas Luhmann (1979). He points to the fact that all human experience of time has, as its ultimate ground, the experience of duration despite changing impressions, and from that comes the differentiation into two fundamental modes of experience, each of which involves the other. We are only ever conscious of an event within an enduring experience and our awareness of continuing states is always punctuated by a variety of events. Our experience of the procession of states and events is made familiar through processes of *typification*. As we have already seen, this familiarity makes it possible to obtain relatively reliable expectations, and to manage some of the remaining ele-

ments of risk and uncertainty as well. Against a familiarity oriented to the past, there is the future orientation of trust. Trust is only possible in a familiar world. It needs history as a reliable background based on the anonymously generated familiarity of nature and human relationships.

Luhmann's account derives from the social psychology of G.H.Mead, the phenomenological philosophy of Husserl and the sociology of Schutz, and to some extent, Garfinkel's ethnomethodology. It shows *personal trust* as a basic social element underpinning in the everyday world, permeating our experience of our immediate surroundings and of the *alter egos* we meet there. It always extrapolates from the available evidence and in the last resort no indubitable grounds can be offered for it (Bellman, 1981); indeed it is weakened if the attempt to provide grounds is pushed too far. It is a blend of knowledge and ignorance. Luhmann then goes on to develop the idea of *system trust*. Whereas personal trust and trusting relationships find a favourable environment in stable social contexts, system trust is much more impersonal. In modern society, personal relationships based on long acquaintance and well-defined roles and norms have been displaced by those organised through impersonal political, administrative and interactional processes which depend on cognitively based social achievements.

Luhmann has hypothesised the functioning of a number of communications media which are used for steering social systems and all of them involve trust: money, power, truth and love. The money medium involves trust in a system which circulates information on exchanges. Parties to a transaction in the money medium need neither to know each other nor to understand what each is doing. For the system to work procedural conformity is all that is required.

In the truth medium, objectified meaning is communicated. Trust is only possible where anonymous truth is possible: its acceptance permits a great reduction in the complexity of experience. In a truth system, two egos can reach agreement about a given entity which they can expect would be binding on a third party.

Nevertheless, the amount of complexity which is socially available today is overwhelmingly large, even for a truth system, and the individual must deal with it in a simplified way, ie. through various forms of expert and other types of competent authority which articulate

the systems.

Luhmann observes that we place our trust in knowledge not as a system in the sense of a closed set of true scientific statements but as an ordering of communication behaviour conforming to procedural criteria: one believes, one trusts, one takes for granted the outputs of the various systems because they have been expressed in procedurally correct forms by persons appointed in procedurally correct ways.

## Politics, philosophy and trust

From the point of view of both personal and system trust, as Luhmann has used the terms, trust can be regarded as a social means for bridging both ignorance and uncertainty, and hence it concerns a question which is at the centre of political philosophy, but which has been largely absent from recent thought in the field – that is the question: what is it that we have good reason to do? This question has not been present in social and political theory because both Marxist and non-Marxist views of society, have, in large measure, been concerned with causal theories of social action, where scientific knowledge of behavioural regularities replaces experiential judgement of life chances. Luhmann has shown that trust provides a measure of buffering and linking between the experience of the present situation and its dispensable hopes and expectations, which are necessarily, at least partially, to be disappointed: the hope of foretelling by means of cognitively rational calculation always, to some degree, falls short of realised performance. Trust is, above all, a technique for coping with the freedom of other beings, extending the availability of time, and delaying gratification. It leads to a stabilising of expectation built upon the adoption of behavioural norms. For Luhmann, and for functionalist theorists more generally, modern societies depend on cognitively learnt assumptions about procedural conformity rather than on judgement about right, or reasonable, actions.

That is, the question – 'What is it that we have good reason to trust?' – is, as John Dunn, the Cambridge political philosopher, has pointed out in an article (Dunn, 1984) which I have drawn on considerably, one that has become barely comprehensible to many political philosophers and social theorists over the last

century or so. For a systematic approach to this question we have to go back to Hobbes (1662) and, in particular, to Locke (1690) who had no doubt that, for the most part, individual human beings must rest their actions on belief rather than on knowledge, and accepted the very limited extent to which rational and moral conduct depends on the causal properties of societies. The social and political theory of the city-state or polis was predicated on the idea of a small society, that of feudalism on the idea of an organic society; but modern social and political theory dating from the seventeenth century develops the idea of a society of *strangers* (Weil, 1987).

The struggles between the absolutist monarch, the established Church and the Puritans decisively changed the old bases both of conflict resolution and also of cooperative action.

Hobbes' answer to this newly developing situation was that the motivation for social stability, negotiation and the avoidance of conflict lay in a fear held in common, and argued that this should emanate from the central organising function of the 'Leviathan'. Hobbes was specifically concerned that religious conflict should not be permitted to disrupt society and so developed the theoretical basis for religious toleration and for the public and private realms. So long as the individual obeyed the State and accepted its political processes, then deeply fundamental questions of conscience and belief could be quarantined in what has been called by Ronge (1982) the 'ante-room of politics': toleration became a plank of prudential political policy, a prudence which rests on broad considerations of trust, and so the essential presupposition of western democracy, the fundamental requirement for this system, is political trust. In particular, the winners are to be trusted not to destroy the losers, nor the system which would allow the losers to become the winners at some time in the future.

It follows, therefore, in a political system so constituted, that in any period, since the situations necessitating trust are ever-changing, the crucial question is, 'what is it that people have good reason to do?' – that is, to trust – and Locke addressed this question in detail. Locke argues from three assumptions: firstly, an acceptable human society depends upon a structure of moral duties which cannot be derived from the rational assessment of worldly ad-

vantage; secondly, the most important of these duties is to act in a way that *deserves trust*; and thirdly, the most important theoretical question of human duties is the question of how far we can *know* the extent of those duties, and how far we must rest an assessment of duties on *faith*. Locke used the term faith in both of its usual senses, that is, as a basis for action depending on loyalty, and resting in incomplete knowledge. It is important to note that, from Locke's position, because human beings are rational agents, they are in principle capable of taking responsibility for many aspects of what they believe and it is this consideration which has been largely absent from modern political theory. This leads on to questions which are important for Locke but which I can only glance at here: why political power can serve benign purposes, and why political power deserves trust. For Locke, the answer is that human beings are both inherently *partial* and *fallible*, and that legitimate political power serves the dual purpose of providing institutions for the articulation of clearer epistemic standards, and less partial enforcement agencies for the accepted structures of rights and duties.

All of this, of course, speaks to the need for the State to provide adequate *epistemic* standards, since, over much of the field of social interaction it is on the basis of information provided by State agencies that people must decide what they should believe, ie. in Luhmann's terms, the appropriate norms for system trust. For Locke, it is necessary for people to learn how to take full moral responsibility for the content of their own beliefs – a notion which, as Dunn points out, is puzzling and barely coherent in the eyes of many modern philosophers. In Locke's eyes, clarifying the standards on which to come to judgement is quite as much a matter of personal responsibility as determining those on which to assign knowledge; and, in terms of their place in the conduct of everyday actions, discretionary judgement and belief are far more salient than submission to the necessary dictates of knowledge – and more so, now, than in Locke's day. This sits oddly with modern social theories based upon causal hypotheses of rational calculation and cognitively derived norms and rules for social functioning and with more recent ones employing notions of communications media and truth effects as the means of social linkages. The spread of causal notions of

society was a result of that very Enlightenment of which Locke was one of the prophets. The positivist hope of social laws waiting to be revealed with the clarity and firmness of eighteenth century mechanics has never been completely exorcised from large areas of both popular and professional opinion. At least up until the 1970s, the idea that the structures of society and knowledge could be described and known, rather than judged and trusted, was the mainstream view and it was the famous dispute over this in the 1960s in German intellectual life, the so-called *Positivmusstreit*, in which Adorno (1969/76), Dahrendorf, Habermas, Popper and others were engaged, and the subsequent debates in France, the United States and elsewhere which marked, in many ways, the watershed of the old orthodoxy.

The wide acceptance of falsificationism, with the spread of the idea that science is only a present fabric of argument, to be modified when some aspect of it has been proven false, has brought into focus the fragility of science for providing a stable basis for social interaction and regulation. In environmental matters especially, the scientific monopoly of truth is now challenged, firstly, because of the public recognition of the naked play of interests of various kinds in its formation; secondly, because scientific specialisation is becoming increasingly suspect; and thirdly, because, related to that point, it is now accepted that the nature and extent of many hazards are not accessible to scientific determination. This may be, for example, because of ecological complexity, or because allowable toxic limits may be applied only to individual substances, rather than to the mix of substances actually present. That is, it is now becoming clear that scientific conclusions in these matters depend much of the time upon practical judgements, rather than theoretical proofs of causality, and that these judgements rest inescapably upon trust. This new scepticism has arisen together with the expanding realisation that technoscientific agencies of the State have already collectivised many of the basic elements of daily experience by defining the standards for, and the incidence of, risks, for example, whether the water is potable, the food edible, the air breathable. In so doing they adjudicate the social distribution of risk, a distribution which is a result not, as it used to be, of the vagaries of nature, but of the social workings of science and technology (Beck, 1987, 1989).

While much of the political life of the last two centuries has been devoted to devising institutions for regulating the access to and the distribution of economic resources and opportunities, and for developing structures of conflict reduction and negotiation that are considered worthy of trust, it has now become clear that a new political process is in train, which cuts across the old social stratifications of class and epistemic classifications of the everyday life: its objective is a restructuring of the basis for bestowing trust in the productive and regulative systems which generate and allocate risk. These, par excellence, are the processes of technoscience. In particular, this contemporary politics is concerned with the processes and institutions by which the production of, and the exposure to, risks are to be regulated. The path and the outcome of this politics, which, as it is running at present, is in the direction of an expanded democratisation, cannot be predicted; but, insofar as the debate turns around questions of choice and responsibility in the everyday world – as we know from the daily news ration of chemical spills, toxic food additives, and cancer-dealing sunshine – it involves a repoliticisation of the interaction between personal trust and system trust, between lifeworld and system; and it will if we are fortunate, lead to a reconstruction of those mediating institutions linking system and lifeworld, system trust and personal trust, to which Locke assigned the role of providing better and less partial epistemic grounds and reasons for trust.

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