Chapter One: Looking back

This chapter begins with a brief look at the origins of the western industrial worldview and its development through the scientific and industrial revolutions. The world so created is an impressive one in many respects, so due attention is given to the achievements of this outlook in the 20th century. I then turn to our current predicament by considering some of the costs of this worldview. This allows a diagnosis to be proposed consisting of issues that should concern us as this century comes to an end.

In order to say anything sensible about the future, one must first look back to the past and ask some key questions. Where did we come from? What are the main themes? What structures, processes and ideas have constructed our present? The thrust of this book is positive. It looks beyond the global problematique to some of the social and cultural innovations that can help our badly-compromised culture back to a condition of health and informed optimism. Yet it is necessary to begin with a diagnosis; otherwise the point of strategies for change will be lost. Hence, looking back is a kind of ground-clearing exercise to help us locate ourselves in the wider process. By understanding a little of the world we have emerged from we can more clearly see the world we live in and those that potentially emerge from it.

Origins of the Western Industrial Worldview

The medieval world picture was very different from what we now take for granted. To begin with, the earth was regarded as the centre of the universe. A series of chrystalline spheres was believed to surround it, beyond which was God, the creator. All of existence was teleological, i.e. had intrinsic purpose. Man was the centre of this world and was its lord and master. In this view, knowledge was based on the authority of tradition which, in practice, meant religion. So to find out about things it was necessary to consult texts, or those who knew what the texts dating back to Plato and Aristotle said. In other words, this was the age of scolasticism. Understanding was reached not so much by experience and experiment (because the former was heavily 'filtered' and the latter had not yet been invented) as by citing authorities. Time was understood as being either cyclical or static. Nature was alive, vital and had great symbolic significance. In Berman's terms, it was 'enchanted'. It possessed intrinsic meaning which could be experienced concretely. One could observe nature and make deductions from general principles.

It was a world in which, despite recurrent privation and material lack, people were fundamentally at home, situated at the heart of things, with all the consolations of a powerful religious interpretative order. However, it is important not to romanticise the medieval outlook. The point is that people were organically interwoven with each other and their environment and that 'the big questions', to the extent they were consciously formulated, had clear and comprehensible answers. In terms of epistemology and social practice there was a sense of being grounded in a durable reality. Yet by the end of the 16th century a different view of reality was developing through the work of a number of great thinkers, but particularly through Bacon and Descartes. Bacon is credited with inventing the scientific experiment - that is, the notion of isolating a part of nature and subjecting it to some form of duress, in order to gain new knowledge. It was he who placed a new value on technology, seeing it as a source of value and meaning. Descartes, on the other hand, was a radical skeptic who doubted all but his power to reason. His response to scolasticism was to question everything. This could be termed 'healthy' up to a point, but it also raised the issue of radical uncertainty, which remains with us to this day. According to Descartes, human thinking was essentially mechanical, or

mathematical. The essence of his method was 'atomism', the view that a thing was nothing more than the sum of its parts. Here, then, are some of the foundations of the mechanical worldview that was later to arise.

Descartes assumed that mind and body were separate, like subject and object. He thus invented dualism, a fundamental split in western consciousness that still haunts us today. The combination of Bacon's method with Descartes' philosophy helped to lay the foundations for a mechanical philosophy, a view of the world as a machine-like entity that could be interrogated in order to discover empirical truths. While, on the one hand, this liberated human thought from the claustrophobic confines of religious authority, it also broke the brittle boundaries of that earlier system and opened up the possibility of a new world order based on control and predictability. Those who followed in this path were bound to encounter difficulties. Hence the story of Galileo whose work on the phases of the moon and other celestial phenomena put him on a collision course with religious authorities. But Galileo's other achievements (notably a series of elegant experiments with pendulums, balls, weights, pulleys and frictionless planes) united rationalism and empiricism in a new way. Now it was possible to invent ways to tease out nature's truths - an act which could only be achieved by a radical distancing of subject and object. Here manipulation became the very essence of truth.

Isaac Newton took up the new tools and applied them. In so doing he completed what amounts to a revolution in the way people looked at the world. For Newton, the universe could be described as a set of discrete forces acting upon each other. In this view, the solar system, with its sun at the centre, came to be seen as a vast machine. A machine which, once it was understood, could be turned to human use. Hence there developed a philosopy of nature based on reason, manipulation and control. This is not to say that Newton's account was entirely consistent. For example, his view of gravitation was widely criticised by contemporaries. Yet it is also true to say that, in his lifetime, Newton was considered almost a god because he had revealed some of the primary mechanical forces of the universe, forces that could now be turned to human use. However, in the process a vitally important question was lost sight of. In all the jubilation about new sources of technical power, the all-important question of 'why?' was overtaken by the more immediate issue of 'how?'. Thus was established the split between facts (what is) and values (what ought to be) that has plagued western culture ever since.

Yet those who went on to fuel the industrial revolution were unaware of the loss. All they could see were new machines and expanding opportunities. In this way a fundamentally alienated consciousness was inscribed upon the new system. From the beginning, industrialism was flawed. Yet, for a time - two centuries or more - it worked so well that the flaws were largely disguised and overlooked. The revolution was built on a long series of technical discoveries, each building upon the other: the steam engine, electric power and lighting, mechanisation, new materials, the telegraph, radio, manned flight and, eventually, the internal combustion engine and mass production. The pre-industrial rural economy was largely wiped out. In England at least, the enclosures drove people from the land. As the 'dark satantic mills' and factories began to spread, so more and more people were needed to work in them, often for very long hours. The reality-principles that had lasted for centuries now no longer seemed adequate. Automatic respect for authority had gone. So, too had the organic union between people and their environment. Even the basic categories of time underwent radical change. Time was now beginning to be money, and, unlike produce, money could be accumulated without limit, regardless of other constraints.

Whereas pre-industrial time had been static or cyclic, moving rhythmically with seasonal variations, now it was urgent, precise, controlled. Along with the ability to create time-tables and make appointments there also came the anxieties and pressures of mechanical clock time: being late, running out of time, needing to hurry. Here, as always, we see the aspect of technology as a two-edged sword, always taking something away, even as it bestows new gifts. The Victorian era was, in many ways, the peak of industrial society. With its technological head-start British industrial capitalism spread across the globe to create an empire 'upon which the sun never set'. It was a system copied and emulated by other European colonial powers. The ethos of the era was most clearly demonstrated at the Great Exhibition in London in 1851. Here, a series of magnificently-appointed displays showed off the pride of British technical power and skill. Great engines, magnificent sculptures, fountains, and the rest. They all spoke with one voice: pride in the past, confidence in the present, optimism for the future.

But it was not to last. With the coming of the Great War, it became clear that the rational organisation of men and machines, backed by the power of contending states and driven by competing ideologies had led to a literal dead-end. The dreams of utopia, of an earth made new by reason and technical power, died in the mud of Flanders and have since been lost to us for most of the century. Whereas the Victorians had genuinely believed in a new era of peace and prosperity for all of humankind, other factors had been at work to subvert this aspiration. An uneasy atmosphere prevailed between the First and Second World War. Alignments were conceived, agreements were tried. But a different dynamic had been established. Under the pressure of war, and impending war, new resources were poured into the business of making new weapons and weapon systems. Throughout the Second World War science and technology were deployed at every turn to gain competitive advantage. And then, at the close of the second war, a devastating new factor emerged.

When the first atomic bomb was dropped in 1945 it sealed forever (or so it seemed) the idea of the future as a desirable place, or state. Instead, it seemed to some to be 'a disaster that had already happened'. The psychic, and hence cultural, fallout from this event has reverberated around the world ever since, generating (among other things) a downbeat Dystopian literature which explores different aspects of future worlds gone sour. This is the territory of *Brave New World, 1984* and very many others, be they in print, on celluloid on on TV screens. I will have cause to review some of them again below. Here let me simply note that there is a direct line, a clear and unambiguous sequence, from the early insights of leading scientists to the world we inhabit today poised on the edge of catastrophe. This leads to a key question: how different might it all have been if foresight had been employed at every stage? One thing is certain: our world would very different to the way it looks today.

So what early indications can we glean from this look back to the origins of the industrial worldview? A number of things stand out clearly. First, industrial culture was bought at a certain price. In parting company from the medieval period and embarking on a brash new one, it discounted a large part of what most cultures on the planet have considered valuable - what Berman calls 'a whole landscape of inner reality'. Second, the drive for industrial progress instituted a technical/rational dymanic over a human or cultural one, such that it has seemed in the intervening years that science and technology became dominant forces within industrial culture. Third, that in the heady rush to create, invent, discover and apply, almost no-one was paying attention to the wider picture, to the sum of all these new devices and their effects. This is why HG Wells continually complained about the lack of foresight in his time. Finally, it follows that that

over the two centuries of industrialism almost no attention was paid by those who created and sanctioned change to the kinds of futures implicit in the process.

Before discussing the question of costs in more detail, we must first give this system its due and consider some of its achievements.

Achievements of Industrial Culture

Those of us who live in cities (i.e. the majority) do not find it easy to appreciate just how far we have come in the last two centuries. Like fish in water, we seldom pause to think about where we have come from or where we may be going. But the backward glance is important. It provides a sense of perspective, a starting point for access to 'the big picture'. Two or three centuries ago our ancestors would probably have lived in small rural communities or towns. They would not have had electric light, power or any of the machines we now take for granted. No toothbrushes, telephones or antiseptics. They would have risen earlier, with the sun, worked hard, long hours, and gone to bed early. Their lives would have been dominated by seasonal rhythms. Since food would have been a first priority, a great deal of effort would have been devoted to growing, storing and preparing it. There were, of course, no refrigerators, no convenience foods, no long-life milk. Families would have been larger. But many more women died in childbirth and many more children died young.

Transport would have been largely by foot, horse (and perhaps carriage) and boat. Communication between one place and another would have been slow and uncertain, particularly in winter. Access to medical care would have been rudimentary, though an extensive tradition of folk medicine would have been available to many. Given the isolation, the dependence upon the seasons, life would have been intensely local. People would have been born, grown up, married, had families and died in the same village or valley. This 'organic community' would have been severely stratified according to family, wealth and title, and the ownership of land. Yet there would also have been local rituals and festivals, many connected with the church, which would have given life much of its variety. Indeed, religion played a much greater role in people's lives than it does now. The harvest festival provided a symbolic way of giving thanks for the bounty of the year, while the winter solstice gave assurance that harship would end and life would return.

To gain a real sense of the past, as indeed of the future, one needs to turn to art, imagination and literature. In numerous stories or novels we find the lived quality of earlier days reconstructed for us. In whatever culture we find ourselves, there are accounts of such earlier days. They provide useful starting points for our journey into the future. Yet, given the nature of the industrialising process, and the upheavals it engendered, let alone the forced moves from one country to another, it is likely that most of us will have lost touch with our roots, our origins, the specific places and people we are from. This loss of contact with the past is one of the distinguishing features of our time. Hence the effort to uncover roots, elaborate the family tree, write, or re-write, our own histories. Given all this: our distance from the past, our immersion in the present, our ready acceptance of what is in fact historically unprecedented; it does take an effort of imagination to see the present clearly. Moreover, we tend to be preoccupied with problems and tend to overlook the very real achievements of this culture. So, before proceeding to the costs, let us pause a moment to reflect on these achievements.

Imagine a dusty plain. Brown soil, clumps of bushes, a light scattering of trees, dark, low hills. Not a soul in sight. Just some browsing animals in the middle distance and a flock

of bright, noisy birds flying overhead. This is the site of a future Canberra, the capital of Australia. Now see it as your aircraft approaches from the south, circles, gives you a bird's-eye view of a breathtaking cityscape. Lake Burley Griffin, the strong axis of the city from the war memorial to the vast new parliament house set atop a hill. See the way the roads, the curved avenues of houses cluster around this grand design. See the skill and care of master architects who sculpted this new reality out of the dusty plain. Moments like this can give one a profound sense of pride, wonder, at the human project. This is an achievment! Look at any great city from the air - it may be Bombay, Vancouver, even Los Angeles - and, if the conditions are right, one can feel this sense of participation, of being part of a powerful and accomplished culture.

A complementary insight emerges from contemplating the earth in its barren aspect. On many trips between Melbourne and London I have often woken up over the deserts of Afganistan or Turkey. Looking down from the sky there seems to be nothing but a vast emptiness. Mile after mile of sand, rock, bare and broken hills. Henry David Thoreau was among the first to clearly understand how vital it is that areas of wilderness are maintained upon the earth. They remain important, in part because they are a benchmark, reminding us of the realm of raw nature which we have transcended so decisively. We have won more than a foothold on this planet. Our species has transformed it utterly. It has levelled mountains and raised new ones, emptied lakes and created others, removed whole biomes and replaced them with farms, roads, buildings and parks. The point is not to romanticise nature - if left alone in it, most of us would die. So we have made ourselves secure by re-shaping our environment to suit our needs. And there are so many of us; now over 5 billion. So the transformation is extensive.

The industrial revolution completely changed the landscape through mechanisation and land-clearance. In wealthy countries, small farms were replaced by larger ones. The tractor did away with the horse and fields grew bigger. The grain from the new fields fed the animals, and meat and grain was sent over increasing distances to the developing cities. This is another great achievement. The logistics of food supply to a large city are complex and difficult. Within the cities, health became a problem. It became necessary to invent sewage systems to carry away the waste and to organise water supplies for this and other uses. In the city of man everything had to be re-invented. The late 20th century infrastructure is a scientific and engineering miracle. We are so used to it that we take it for granted. Yet, if one looks in the right places, there are still people who take a pride in this kind of technological virtuosity. Though it has become unfashionable to say so, the curve of a road can be beautiful; the span of a bridge can inspire; the vault of a building fill one with wonder.

These miracles are obvious and commonplace. There are so many of them, Yet within the new infrastructure are many more. There are machines of every kind. Machines that: calculate vast numbers in moments; peer into the depths of matter and the limits of space/time; fling messages across continents and seas; and so on. They support a bewildering variety of human enterprises: medicine, sport, entertainment, defence, governance, politics. So, in one sense, the achievments of this culture are not be be measured or found in the outer world of its physical structures, so much as in the inner worlds of its people. People who can now, as never before, live lives of greater variety and interest than ever before. It is salutary to think that the 'ordinary' man or woman of the late 20th century, living in a developed western country, has access to more luxury, more significance, more goods and services of every kind than the kings and queens of the past could ever have dreamed of. This too is an achievement.

But...(there is always a 'but'!)...the achievements, real as they are, have indeed been bought at great cost. So having given the 'city of man' its due, I turn now to the darker side of progress, to the other side of the balance sheet. An overview of the costs provides us with the evidence we need to suggest a view of what has become so dysfunctional within late industrial cultures. From here we can identify 'the metaproblem', i.e. the sources of global problems which can be located firmly in the foundations of the industrial worldview itself.

Costs of Industrial Progress

Before the Second World War, it was possible to look around and see a long, steady process leading to a kind of Utopia, a heaven on earth, where all people would be well - ed, happy and at ease. Many literary utopias explored this vision in compelling detail. But as we all know, this is not what occured. In the early decades of the present century the dream died and utopia turned sour. Part of the reason is that industrialisation had observable costs and impacts from the start. Forests were felled to provide charcoal. Rivers were dammed for lakes. Native peoples, birds and animals were repeatedly displaced to make room for the new order. To be sure, earlier peoples had modified their landscapes, felled forests, caused species to become extinct. But that had all happened when the human population was relatively small and nature seemed vast and inexhaustible.

During the 19th and 20th centuries the whole process speeded up and changed scale. It is this, perhaps more than anything, that should cause us concern. For, in many ways, our habits of thought, the assumptions built into our institutions, come from this earlier time. This helps to explain why we act as though we lived in a less fragile, less damaged world; why, therefore, we tend to just let things happen without considering the consequences. But there have been many. In parts of Eastern Europe, the old USSR, in many third world countries and on many islands, the landscape has been devastated, it would seem, beyond repair. The forests have vanished, the soil washed away, the ground water depleted or polluted. In the USA a dustbowl was created where previously fertile soil and a rich grassland ecology had existed for centuries. More recently the songbird migrations have thinned out. With their habitat compromised and new poisons and dangers to avoid, many species of birds and animals are declining; the odds too heavily stacked against them.

The world's oceans have not escaped the impacts of industrialisation. Tetrethyl lead, added to petrol, is universally distributed throughout the world, along with a witches' brew of other pollutants: cadmium, DDT, PCBs, plutonium and the rest. No one knows when, or even if, some essential link in the ocean food chain will be severed by this treatment. But using the sea as a sewer for industrial waste is neither wise nor far-sighted. Seals in the North Sea, Beluga whales in the St. Lawrence Seaway, penguins in Antarctica all show the effects of toxins in their environment. The whaling industry has hunted many of the big whales to the edge of extinction. Japan, in particular, still operates under a medieval code in this respect. Other countries have allowed their own, or others' fishing fleets to exhaust whole fisheries, by mining them as a short-term resource. On land the continuing assault upon tropical forests is eliminating birds, plants and animals at a frightening rate. The overall effect is to impair the earth's ability to support life. That is, to store carbon (in trees), re-cycle oxygen and host genetic diversity. All of these are beyond value in money terms, but they are being exploited beyond their ability to regenerate.

The impacts of humankind are now operating at the level of a natural or geological force. For example, the composition of the atmosphere is changing, with CO2 being responsible for a steady increase in mean temperature - the so-called 'greenhouse effect' - with all that that entails. The widespread use of CFCs for industrial and domestic purposes is thinning the earth's layer of protective ozone. While production will be phased out completely by 2000, it will take a further century for the substance to be eliminated, and no-one knows what the full effects will be in the meantime on humans, plants, birds, fish and plankton.

Apart from these costs to natural systems, we should not forget the human costs, particularly to native peoples across the world. Many were visited during the period of colonial expansion and experienced the 'fatal impact' of new cultures, technologies and diseases. In later times, pirates, explorers, missionaries, soldiers, miners, foresters, ranchers, whalers, and others added their impact and in many cases destroyed the viability of such cultures, and even of their ecosystems. Today native peoples exist as remnants at the margins of the global mega-culture. While some have recovered a sense of identity and pride, most have never recovered. This too is a loss to the whole human family because cultural diversity is, perhaps, the greatest source of inspiration and insight into the different ways human society may be constituted. As with the genetic diversity in the forests, this knowledge will be needed in the years to come. But we are nowhere near valuing or protecting it sufficiently.

So the old image of the 'dark satanic mill' with its gloomy atmosphere, smoke and human misery, is only a part of the story. More important is the total impact of industrialisation as a new global force. The impacts may be local, but many also tend to be regional or global. Acid rain is no respecter of national boundaries. Plutonium, with its half-life of 250,000 years, is not a local, temporary problem. Wildlife extinctions are for ever. For a barometer of how things are going on this wider scale, one cannot do better than turn to islands.

The Plight of Islands

There are countless islands in the world which attest to the impact of industrialisation. But I want to close this account with one I happen to know well. Bermuda is situated some 700 miles south of New York in the north Pacific. It was formed by volcanic activity in the distant past. The volcanic islands were eroded away, and the present islands were created by limestone deposition and solidified sand dunes in a later era. They are not spectacular, the highest hills being only a few hundred feet high. But primeval Bermuda was a natural wonder. To begin with, millions of sea birds: petrels, shearwaters, terns, herons and so on nested around the rocky shores. Spanish sailors dubbed the place 'the devil's islands' due to the unearthly keening of the birds at night, and Shakespeare wrote this detail into *The Tempest*. Besides the profusion of birds, there were turtles and fish of many kinds. The shallow bays were filled with mangroves where herons nested and, fringing the cliffs and coves, there lay a mysterious forest dominated by cedar, palmetto and olivewood trees. Here the tiny white-eyed vireo evolved shorter wings than its mainland cousin. The canopy was high, blocking out all but the most persistent of the sun's rays. Ferns grew in profusion in the shade and a clean, peaty odour rose from the soil. The only land vertebrate was the innocuous rock lizard, or skink. Thus the sea birds were free to nest along the cliff-tops, in the soil and on the clean, sandy beaches.

The destruction of this natural wonderland began when Spanish sailors left pigs on the islands for an emergency food supply, in case of shipwreck. It continued when the first

settlers arrived, bringing cats, dogs and, most destructive of all, rats with them. All - that is humans and animals - saw the birds as natural food resources, and, within a few decades, the bird hosts of the past were gone. At a later stage, the forests were cleared to make room for farmland. Attempts were made to grow tobacco, and more commonly, staple foods such as potatoes and corn. As time went by and a small community developed, so a local craft industry developed, based on the durable and fragrant wood of the cedar. So, by the beginning of the 20th century, this small group of islands was sprinkled with a scatter of white, lime-washed houses. The change of scale I referred to above also occurred in Bermuda. Despite the early destruction of the bird colonies, this would have been a point at which a viable balance could have been maintained between human use and natural wealth. But that point of balance was completely overwhelmed during the present century. For a while Bermuda was a quiet destination for rich and discriminating tourists, and also a market garden for New York. Yet as the tourist industry developed, and as the lines of communication, travel and commerce developed around the world, so Bermuda become integrated into this expanding world-wide network.

By the time I arrived there in the late 1960's, parts of the islands resembled a thriving metropolis. The population had increased rapidly. Hotels had been built. Cars, formerly forbidden, were imported *en masse*. And all the problems of civilisation were springing up in this former paradise. Oil stained the coral sands. The tiny roads were jammed at peak hour. Young people were looking around and trying to make sense of it all. Amid the affluence a great deal of uncertainty and despair were beginning to emerge. And the islands were crowded. With only 20 square miles in total area, and a resident population of 50,000 there were on average 2,500 people per square mile. Most families lived in a house. Many had a car, a stereo system, a washing machine, a power mower and so on.

Thus, the islands had moved from one state of existence to another. A veritable tidal-wave of people had sought a place in the sun and done what people had always done - re-shape their environment to suit their needs and wants. The result for Bermuda is, in my view, a social and ecological disaster. Today, the islands remain relatively prosperous in an economic sense due to income from tourism and their status as an off-shore tax haven. But the soul has departed from this place. The spirit of primeval Bermuda has been extinguished by modernity: it has become a powerful metaphor for the entire globe under late industrial conditions.

The Metaproblem

At this point it is useful to introduce an aspect of critical futures thinking. Having considered some of the origins of the western industrial worldview, the achievements and the costs, it is now appropriate to turn to a deeper analysis. This means that we can stop considering 'world problems' as if they were somehow separate from the systems of value and meaning which created them in the first place. We can, instead, begin to focus on the underlying 'breakdowns of meaning' which have occurred (and are occurring) within all cultures affected by industrialised epistemologies and assumptions. Once again, it is helpful to re-emphasise that focusing on 'the breakdown' could be misconstrued if it were taken to be merely an attack on existing ways of life. However, that is not my purpose. It is a necessary diagnostic step. Gaining a clear view of what no longer makes constitutes a vital step toward healing and recovery.

I am here concerned with 'constitutive understandings', i.e. those which have shaped our views of the world at a very basic and powerful level; understandings which have

been expressed through (and embodied in) our social, economic and technical systems. As such they have taken tangible form and led to the kinds of consequences outlined. The latter are already evident in our past and present. Others are being displaced into the future and represent challenges created by one generation, but which future generations will have to grapple with, and solve if they can. An example may be useful here.

The SDI (or Strategic Defence Initiative) was justified by the Reagan administration as an attempt to purchase some degree of protection against the possibility of nuclear attack by the then USSR. It involved the expenditure of huge sums of money for the construction of a nuclear 'shield'. This 'shield' involved placing military lasars in orbit programmed to destroy Russian missiles before re-entry into the earth's atmosphere. Yet, despite some very compelling graphics, the system was technically unworkable. Were this otherwise then a whole new era in the militarisation of space would have ensured. But the key question is: for what end? The fact is that there is not now, nor has there ever been, a valid reason for beginning such a project. The mere deployment and testing the system would have exacerbated the already serious problem of 'space junk', thereby further threatening all future attempts at space exploration. (In 1986 there were some 7,000 large objects in known orbits and over 40,000 smaller ones.)

From a superficial and non-critical viewpoint the SDI could be viewed as 'a prudent extension of US defence policy'. The 'shield' metaphor was certainly intended to suggest something benign and protective. But the reality was entirely different. Resources which sprang from human ingenuity and the biological productivity of the earth were diverted to wholly negative and destructive ends. In a more critical view, these resources were misused and wasted by the imperatives of institutionalised paranoia. From the point of view of the nuclear state it appears more 'rational' to turn earth and sky into one huge battlefield than to confront the human origins of its expansionism and fear. Viable futures simply cannot be derived from impulses and assumptions of this kind. This example could be multiplied indefinitely and it shows why a critical futures approach is essential. Without something along these lines it is all too easy to accept conventional assumptions which later turn out to be disastrous. Given that we have two centuries of evidence to consider, we can draw on that historical experience to identify several aspects of the metaproblem.

1. The Dominance of instrumental rationality (IR)

IR is a powerful cognitive system which matches means to assumed, or pre-given ends. It permits the construction of devices and machines of enormous power: computers, rockets, body-scanners, automobiles and the rest. The physical infrastructure of our civilisation is dependent upon it. So the point is not to eliminate IR since we could no longer survive without it. The difficulty is that the way of viewing the world which IR encourages contains certain defects and is wholly inadequate for other non-instrumental purposes. One defect is that it contains no notion of limits. Another is that it provides no rationale for seeing the world as other than as a kind of machine, or as a set of inert resources. Since IR is a system which only addresses the physical 'layer' of the world, it cannot supply useful insights about ethics, meanings or purposes. Hence, unless it is limited by some other (higher) principle, its applications soon become dangerously over-extended. Many would now argue that that is exactly what has happened in Western culture. Taken alone, IR is a recipe for disaster. It needs to be incorporated into a wider map of knowledge (see Chapter 10).

2. Reductionism and Loss of the Transcendent

Reductionism is the tendency to take something with a diverse range of qualities and to disregard many of them. The standard ploy of reductionism is to say that if something cannot be measured, it does not exist. Economics has fallen into just this trap such that, for example, housework was long regarded as being literally without value. Similarly, markets operate wholly on the basis of past experience. Regardless of the 'futures market' (a speculative economic sideshow), markets have no methods by which to exercise prudence or foresight. They are crude mechanisms which use signals derived from past and present to govern their operations. As such they effectively make the future vanish. They reduce temporality to a narrow band of self-interest in the here-and-now. This is ethical and ontological nonsense. Reductionism is endemic in industrialised cultures. It says of phenomena 'this is only....' and then picks out some convenient characteristic. Hence, ecosystems basically provide 'services'. People are simply 'consumers' or 'human resources'. Religion is either useless or mere 'therapy'. The possibility that there could be spiritual or transcendent realities of a completely different order is simply overlooked. So far as IR is concerned, ethics, spirituality and futures all have less reality than ghosts.

3. Science and technology for irrational ends.

It was Lewis Mumford who once said of modern weapons systems that the means were rational, but the ends were entirely mad. He saw, as many others have, that once certain technical means become powerful enough, they become ends in their own right. This can be seen with modern information systems which are expanding very rapidly not out of some clearly defined 'need' or 'purpose' but from of the compulsive dynamism associated with competing capitalist economies and enterprises. The present period has even been called 'the information age'. But it is by no means certain that this label fits. Information as such is not valuable. Nor is it to be confused with knowledge or wisdom. The dynamics of expanding information systems are such as to lead toward ends which are largely unpredictable. In this process, means and ends tend to be confused. Similar criticisms can be made of nanotechnology (discussed below). Here the threat of competition is used to fuel technical developments. But again, the ends are problematic. If successful, nanotechnology could undermine the physical integrity of our world. Such ends are clearly irrational.

The key point is this: when powerful technologies are linked with inadequate worldviews or with primitive human impulses they become irredeemably subversive. If science and technology are to help us move toward humanly viable futures they will need to be reconstructed on a different, non-instrumental basis. Hence, if there is a way out of the present cultural trap it will clearly not be via. science and technology as they are presently constituted. It may well be that the only lasting solutions will be via. the re-establishment of truly human ends which are expressions of the highest human motives and capacities (see Part 3).

4. The De-sacralisation of Nature

In most traditional cultures there were strong injunctions to protect nature from overexploitation. Such injunctions draw power from belief systems which endow the environment, and all that lives within it, with specific values and meanings. Many of these entities are sacred. That is, they occupy a higher ontological level than that of mere use. They are not simply 'resources'. They may be worshipped, consulted, propitiated. They become sources of inspiration, metaphors, art - the substance of lived

experience. But Western cultures developed according to the very different dynamic provided by Bacon and Descartes. The result was a culture which felt itself to be separate from nature and also 'above' it. In this view, the Christian injunction to 'subdue the earth' could be completed - but at a huge price. For the earlier cultures which animated nature (and made it in some sense holy, or at least possessing intrinsic value), in a real sense 'knew' what they were doing. They retained access to a richer symbolic world while also protecting their own long-term well-being. The de-sacralisation of nature meant that all the world and its creatures were no longer special, no longer protected. Whales could be rendered down into oil and corset stays, whole forests could be burned or wood-chipped, the atmosphere just became a sink for all the noxious products of human machine culture. The results are now obvious.

5. Having Substituted for Being

Depending upon how one views the world, commerce can be seen as a source of wealth or as a prolific source of misinformation. Or both. Like instrumental rationality, commerce is not inherently 'bad'. But its overextension is certainly proving bad for the earth and its people. The mercantile influence in modern cultures has become far too powerful and, in order to sell goods, the advertising industry uses all the tricks and manipulations available to it. This would not be a serious concern if there were countervailing forces actively able to keep it in check. But there is plentiful evidence that commercial interests have overstepped the mark. They have promoted many items which were better not used, or at least, used in moderation, (cigarettes, alcohol, fast cars). They have debased human sexual responses and encouraged many forms of mystification and reality-avoidance. They have inscribed false, non-viable values upon the consciousness of entire populations. They support surrogate worlds (through mass entertainment) which 'lock up' the human perceptual system in closed, unproductive loops, leading ever further from an active engagement with the world. They have promulgated the falsehood that possessions are superior to human qualities.

By contrast, in a state of 'being' one rests secure in the richness of one's human and wider cultural inheritance. It is a poised and dignified state, not under threat. Nothing essential is lacking because the essentials are already given: life, consciousness, awareness. There is no inner scarcity. By contrast, the 'having' mode is permanently at risk. Needs multiply and become demands. The 'being' mode is fundamentally self-sufficient, but the 'having' mode begs to be supplied with an endless series of substitute satisfactions. It is all to the good that these are substitutes, for this means that nothing will ever really satisfy. The state of 'having' requires an endless stream of merchandise which suits those who supply the goods. But there is a catch. This only works in a world that can sustain escalating demands. Ours cannot. Yet five billion people are now exposed to this diminished ethic. It is a huge confidence trick. We presently use about 40% of the biomass of the earth. When our numbers double will we need 80%? What of the bald eagle then, or the platypus? What kind of world does the 'having' mode lead to?

It is a desperate and diminished one. Once again, this is not a viable path into the future.

In order to come to grips with the metaproblem we will need to re-negotiate some aspects of the prevailing social and epistemological order. To do so will mean intervening in processes of cultural editing and consciously drawing upon other, hitherto-marginalised, starting points, values and assumptions. But before attempting to re-design the worldview, we need to look a little more closely at the ways some of our major institutions are presently malfunctioning.