



1 Natural Environments

Defining Nature and Environment

A good place to start any enquiry is simply with dictionary definitions of key words, which will hopefully give us an insight into their currently dominant meanings as well as previous usage. In my own dictionary, I see that 'environment' is defined as, 'external conditions or surroundings', but 'particularly those in which people live or work'. Obviously this is a human-centred definition of environment, taking *people* as its central concern and starting point. Environments, then, are those external conditions or surroundings *around people*. This is a reasonable start, though this definition, in itself and without further elaboration, could refer to a whole series of very different environments. For example, it could refer to the working environment of factories and office buildings within which people earn their living. It could mean the wider economic environment of wages, interest rates, mortgages and trade which influence the opportunities for people to make a living and whether they prosper or struggle. There is also the urban environment, sometimes pejoratively described in literature as the 'concrete jungle', and in which the majority of the world's people now live. It could also refer to the political environment of parties, interest groups and decision-making, which affects every aspect of people's existence. These are all environments – things that surround people – of varying kinds.

However, when people think about and discuss the state of *the* environment today, I think they are unlikely to have any of these specific meanings in mind. What was your own assumption about the environment as described in this book's title? What were you expecting from the book and what kind of information did you expect to find within its pages? I hope (for the sake of the book's sales figures) that you were looking for discussions of pollution, the science of climate change, animals and animal welfare, flora and fauna, environmental organizations such as Greenpeace, Green political parties and much more. If so, then not only will you not be disappointed, but we can conclude that for many, if not most, people in today's modern world, the environment has a very special and specific meaning, namely *non-human natural* conditions and surroundings. This meaning comes close to another key word that we all use regularly without too much reflection – namely, 'nature'. Do these two words then simply have the same meaning?

Again, I consult my dictionary for advice. But this time the answer is much more complicated, as I find that there are no fewer than twelve

distinct meanings attached to the word 'nature'. This shows that nature is one of the most complex and difficult to explain words in the English language, in large part because its dominant meaning has changed several times alongside major periods of social change in the development of societies. We have been left, therefore, with multiple meanings of nature, three of which stand out as being the most significant and most widely used.

First, nature can mean something that is essential to a person or a thing. 'Why did she do that?' we might ask of a person's action that we don't understand. Well, we may be told, it's just 'in her nature'. That is, her behaviour is something that flows from her *essential* being and she just couldn't help doing it. This meaning can also be applied to animals and plants. Why do some birds build their nests at the same time every year? Again, we will be told that it is an essential part of their being and it is therefore entirely proper for them to do so and we should not expect them to build nests at any other time of year. This particular meaning of nature was still very widespread well into the seventeenth century. Of course, explanations that are rooted in this definition of nature tell us very little *as explanations* of the phenomena in question. How do we know what is and is not 'essential' to the nature of people and birds? More investigation than this would clearly be required to find out exactly what makes nest-building such an essential attribute of bird species. And for people, it seems to underestimate their capacity to change what they do and to make choices that alter their behaviour.

During the fourteenth century in Europe, the meaning of nature was undergoing change and a relatively new meaning emerged as the dominant one. People came to see nature as a series of forces, or indeed the force, that directed the world and ultimately explained why things happen when they do. This meaning is of course still with us whenever we talk about natural forces being at work in the direction of human affairs. Many people still consult astrological charts looking for their birth date-based 'star sign', which promises guidance on life strategies and what to expect in the coming days, weeks and months. Astrologers observe the movement of celestial bodies through patterns of stars called constellations, in order to forecast the most favourable and unfavourable times for certain actions. In doing so, they implicitly draw on the same basic idea that natural forces really do ultimately direct human life. Of course, many people do not believe everything that astrologers tell them and some undoubtedly pore over their own daily charts as a bit of fun to make a boring day at work pass more quickly. Nevertheless, astrology remains rooted in the idea that natural forces ultimately hold the key to understanding why events occur when they do and, as such, even in the twenty-first century, the fourteenth-century meaning of nature is still with us. As far as it is possible to tell, this is no longer the most significant meaning within modern societies.

By the seventeenth century, the dominant meaning of nature was in flux yet again. Gradually, nature was coming to be defined in terms of

the *whole material world of things* rather than as an ultimate directing force. It would not be inaccurate to say that this change represented the movement away from seeing nature as a process (natural forces) towards the view that nature was much more 'thing-like' (the natural world). Defining nature as the whole material world meant that people came to see nature as a world full of fairly static *natural things* – fields, mountains, beaches and so on – rather than a world of moving natural forces and processes. We can see this emerging meaning in the trend towards seeing and describing nature as 'scenery' and in many artistic works, which literally 'framed' nature in a series of landscapes and pictorials. For some people, these pictorial landscapes were in many ways even preferable to the real natural world: they were less dirty, much neater and more pleasurable to look at. Humanly created representations could now be seen as in many ways better than the natural reality on which they were based. In addition, the farmed countryside and rural life came to be seen as more natural when compared to the artificial world which humans lived amongst in the growing towns and cities. Wild places untouched by humans, living wild plants and creatures other than humans were seen as genuinely natural, whilst human creations and constructions, however impressive they might be, were still somewhat less than authentic. Nature was coming to be defined in oppositional terms; as in many ways opposed to human society and culture. Of course, if nature was the opposition and an obstacle to society, then it also had to be overcome and its obstacles cleared to make way for human progress.

The majority view at the time was that nature was clearly deficient compared to culture and society. Nature 'in the raw' and nature 'red in tooth and claw' needed to be tamed and cultivated by people rather than left wild, uncultivated and barren. In 1850, Britain's Prince Albert gave a speech that represented this latest interpretation of 'nature'. He said:

Man is approaching a more complete fulfilment of that great and sacred mission which he has to perform in this world. His reason being created after the image of God, he has to use it to discover the laws by which the Almighty governs his creation, and, by making these laws his standard of action, to conquer nature to his use; himself a divine instrument. (Cited in Golby 1986: 2)

'Man' has 'reason' and is a creation in the 'image of God'. He must therefore use this gift to discover nature's 'laws' as a prelude to 'conquering nature' to his own ends. By today's standards, this is a very strong statement and may strike you as optimistic, even somewhat arrogant, though if we think of some of the environmental problems currently afflicting the world then the power of human societies to affect the rest of nature is evident.

For a significant minority of people in the nineteenth century though, nature was in many ways better than human society and

culture. In its natural (that is pre-human) state, nature was clean, pure and inherently beautiful. It did not need to be conquered, nor was Man a 'divine instrument' of God. For this vocal minority, human societies polluted and wasted nature to feed their increasingly overly civilized urban lifestyles. Rather than yet more economic and urban 'development', people actually had much to learn from the natural world if only they would treat it with more respect.

Notice though, that for both groups of people, nature and society had come increasingly to be seen as separate things, and in philosophical language they continue to form a basic modern dualism. That is, despite their opposition, they have come to be defined in terms of each other. *Nature* is that which society is not, and *society* is that which nature is not. This meaning probably remains the dominant one today, though one difference is that more people would now agree with the nature-lovers and fewer people would support the nature-conquerors.

Time to return to the dictionary! As it confirms, then, today nature is a word of many meanings, some of which are more widely used than others. More importantly, the dominant oppositional meaning of nature is now itself being challenged in a variety of ways. For our purposes in this book, environmental issues pose a serious challenge to such an opposition because they demand that nature and society are understood together, rather than holding them separate. By now, it should be easier to see just why nature is such a complicated word.

The natural environment

In order to be as clear as possible about my own use of these difficult terms, throughout the book I will use a phrase which combines them – the natural environment. The term 'natural environment' is chosen to avoid some of the possible misunderstandings when using 'environment' or 'nature' separately. The natural environment refers to *the non-human world within which human societies and their products exist*. At the local level, a natural environment can be a particular and identifiable area such as a park or a beach. In its most expansive interpretation, the natural environment is simply planet Earth itself. I use this very much as a working definition, not an absolute or fixed one, but the meaning in use should be evident from the context of use.

All this should not be taken as implying that human beings and human societies are somehow not natural. My assumption is that they are just as natural as any other animals or animal groups; it is merely that this book is written from the standpoint of the discipline of sociology, the science of specifically *human* societies. In practice, this means that I will be particularly concerned to explore the *human* consequences of environmental issues and the things that people in human societies can do to resolve environmental problems and dilemmas.

For sociologists, human beings are an animal species that has evolved and developed over time, as have all others. But the human

species remains the only one so far identified in which the balance between behaviour based on *inherited instincts* and behaviour based on *learning* has been tilted decisively towards the latter. Of course, many other animals learn, but for humans, learned behaviour is not optional or an addition to their basic inherited behavioural pattern. Human beings not only *can* learn, but also *have* to learn how to behave in order to survive and thrive within societies. This basic fact makes human individuals in some ways more vulnerable, as they are very dependent on other people for transmitting knowledge and behaviour. At the same time, though, it has also given humans the collective capacity to adapt to changing natural environments and social events without any need for a corresponding transformation in their biological structure. People can learn from each other and transmit their successful knowledge and practices over long distances, thereby sharing it across almost the entire human species. If people in other societies then use it to transform their own behaviour and social life, this has little to do with biologically inherited behavioural patterns, but is, rather, a social process of development based on learning from a shared fund of knowledge.

The long-term development of human societies has therefore been shaped by both biological evolution and social development. This crucial difference between human societies and most other animal groups is often misunderstood as demonstrating the superiority of humans. However, it is not really superiority but *difference*. And this clear difference makes the study of human societies a distinctly *sociological* enterprise, because we need to understand the distinctively social-developmental as well as the biological-evolutionary history of human beings – that is, how societies have changed and developed in different ways as well as how the human species has evolved. Without the sociological analysis of long-term social development, we can seriously misunderstand the nature of human nature, as it were.

Industrialization, urbanization and natural environments

Changes in the dominant meaning of nature in society take a long time to become established and are best seen as part of the long-term process of social change, closely connected to the transformation of people's ways of living. The historian Keith Thomas (1984) investigated changes in social life and people's attitudes in England between 1500 and 1800, the key period when dominant ideas of nature were in flux. The conclusions he arrived at are not restricted to England, as many of the same social changes were also spreading to many other national societies, first in Europe and later across the world. By examining literary and documentary sources, including personal diaries, Thomas showed that attitudes towards the natural environment and the treatment of animals slowly changed during this period. The change was not random, though, but in a clear direction moving away from perceiving

nature as something to be used and exploited by people with no regard for the damage caused, towards attitudes of respect for natural environments, leading people to enjoy natural scenes and things. Appreciation of nature's wildness and heightened feelings of sympathy for animals were the result. Rather than continuing to see nature as God's creation *for* humans, which they could therefore legitimately use at will, a concern for the well-being of non-human animals gradually came to be expressed, along with a growing interest in the effects of human actions on the integrity of the natural environment.

Thomas says that there is a connection between the processes of industrialization and urbanization and people's attitudes to natural environments. As more people left the countryside to work in industrial factories they no longer worked directly with animals or on the land (see below, chapter 4). The working day, month and year were no longer strictly governed by natural cycles as they had been, and in many places still are, in societies that are reliant on agricultural work. They now lived amongst larger numbers of people, initially in dirty, polluted conditions with poor sanitation, much disease and ill health. They returned to the countryside for their relaxation and leisure pursuits. The countryside therefore became associated with peaceful and pleasurable enjoyment rather than hard work and drudgery. The growing towns and cities provided better incomes, but in terms of the quality of life compared unfavourably to country living, which came to be widely seen as health-creating, authentic and even beautiful. More people began to be emotionally moved by the sight of mountains that had previously been thought of as hideous and barren outcrops unworthy of the attention of civilized people. Artists, and especially painters, began flocking to paint the barren scenery and wild environments which had now found a new audience which demanded them. In a parallel development, the humane treatment of animals emerged as an issue for many people and visible animal cruelty was no longer deemed acceptable. Traditional pastimes such as bear-baiting, dog-fighting and cock-fighting were banned. Fox-hunting continued – but that is another story, too long to be covered here (see Tester 1991).

Sociologically, Thomas is describing the psychological and emotional effects of a gradual alteration in people's orientation to the natural environment brought about by fundamental changes in social organization and the rise of a modern scientific worldview (see below, chapter 2). The sociologist, Norbert Elias, argues that over the long term:

as humans have gradually come to understand natural forces more, fear them less and use them more effectively for human ends, this has gone hand in hand with specific changes in human relationships. More and more people have tended to become more and more interdependent with each other in longer chains and denser webs.

(Cited in Mennell 1992: 169–70)

Social organization has become more complex, more internationally connected and effective. Applications of science in transportation and communication technologies have also made the world seem smaller and opened up new ways of understanding natural events and disasters that counter beliefs that these are punishments from God. As a result, people have also become less frightened of natural environments and more sympathetic attitudes towards nature have emerged. In time, most industrialized societies have also seen the emergence of many conservation and preservation organizations that campaign to protect and defend natural environments, birds and animals. Many of them, and more, continue to do so today (see chapter 6).

These transformations of attitudes and beliefs in relation to natural environments have spread widely. Everywhere that industrialization and urban development took place has witnessed some similar changes, though there are noteworthy differences across countries and regions of the world. In the UK, conservation and management of the natural environment was the typical response, whilst in America with its large areas of wilderness and history of pioneer settlement, a less managerial 'wilderness preservation' set the tone for a democratically inspired population. In parts of Southern Europe, the British sensitivity towards animal welfare was and still is seen as taking things rather too far. In many developing countries of the world, natural environments are seen in yet different ways as the traditional home of indigenous peoples who have rights to the land that should be protected from the multinational corporations and national governments seeking to develop it for profit. Urban living and industrial production have distanced people from their previously more immediate and lived reliance on the natural environment. Once freed from this immediately evident dependence, it became possible to look back with a romantic fondness and appreciation for the countryside and for nature.

Humans in Natural Environments

During much of human development, early hominid groups struggled to secure enough food and shelter from the natural environment for their groups to survive into the next generation. Knowledge of natural environments was relatively localized with little systematic contact amongst geographically disparate groups of people. The spread of useful knowledge was therefore a slow process. Small-scale societies often felt at the mercy of natural forces, sometimes worshipping nature in the form of the Sun, Moon or spirits in attempts to gain favour over the natural forces they believed controlled their destiny. Of course, such forces were not experienced as 'impersonal' and 'natural' in the same way that many people today perceive them to be. Over a prolonged period of many thousands of years, human beings learned how to exert more control over their interchange with the natural environment and were able to pass on this useful knowledge across space and time. That

means, to other groups who lived geographically distant from them as well as to younger generations within their own groups.

One especially significant development in human history was the discovery of fire and the invention of techniques for making, managing and keeping it under control (Goudsblom 1992). These techniques were passed down through generations who had to learn the same methods as well as how to stay safe from the dangers of fire. From small domestic fires used for keeping warm and cooking food, all the way to modern central heating systems and large power plants, the gradual expansion of fire-making has enabled, and indeed necessitated, a more complex form of social organization. All human societies now use fire. In the process, more people came to rely more than ever before on the ready availability, control and use of fire. Goudsblom's developmental history of fire use illustrates, in a specific area, the way that human societies generally try to manipulate and manage the natural environment to their own advantage. In the process of managing their relationship with the natural environment, pressure is also exerted on societies to change their own forms of social organization. When early humans learned how to make and manage small fires, they had to organize themselves to keep fires going, to monitor them and, at the same time, to stay safe. Much later, with the introduction of domesticated forms of fire into people's homes, societies needed specialists in fire control, fire brigades and fire prevention advisers. With the advent of large power-generating stations, it becomes important that these are protected from attack by others and are militarily defended if necessary. The point here is that changes in the methods of manipulation of the natural environment always go hand in hand with changes in social organization.

But there is one further element to be considered, and this is the changing psyche of individuals. In order to be able to use fire, people had to overcome their previous fear of it, borne of witnessing naturally occurring bush fires, lightning strikes and volcanoes. This was not an easy task, as it meant controlling their immediate emotional responses long enough to be able to take advantage of the possible benefits of using fire. Such emotional control takes place within the individual's mental apparatus and, over time, comes to be experienced as 'second nature' to them. They hardly ever think about how long it has taken for people to arrive at the present level of emotional control over their own feelings and deep-seated fears. It may well be that people never entirely lose their fear of fire, which today is often described as a 'healthy fear', particularly for children who have yet to learn about fire management. This is because, even today, fires can still cause harm, destroying people's homes, families and livelihoods. Fire is always threatening to escape the control of human societies, however firmly established that control may seem. The lesson we can take from this example is that the relationship between human societies and the natural environment inevitably takes the form of a two-way process and it is a relationship that cannot be broken if human beings are to continue to survive and thrive.

The powers of humans and natural processes

For modern people, the natural environment is often perceived as both their beautiful home which has to be protected and, at the very same time, the source of death, destruction and misery from which people have themselves to be protected. Such an apparent contradiction stems from the fact that human beings, like all other animals, depend on the natural environment for their very existence and can never opt out of their relationship with it. Unlike other animals, however, human beings have intentionally tried to exert more and more control over the natural environment to make their social life together safer and more predictable, even if this has been at the expense of destroying some of the environments on which other animal species depend. Rather than seeing these attitudes as contradictory, it is more accurate to say that there exists a tension between the modern appreciation (and often defence) of nature and human society's attempts to control natural processes and events. This tension is in fact a fundamental feature of modern life with which, given a few moments reflection, we are all familiar, even if in apparently trivial ways.

When gardeners admire the natural beauty of their back gardens, but also take steps to remove natural things called weeds and poison animals called slugs, which threaten to spoil their carefully constructed plans, their admiration for natural beauty is closely connected to their attempts at nature control. People may well take great pleasure in seeing small rodents whilst out walking in the countryside, but also be prepared ruthlessly to kill those same animals should they find them out of place in their own homes. Pet owners will often describe themselves as 'animal lovers' (at least in Britain) and feel genuine affection and closeness to their pets, being grief-stricken and emotionally devastated when they die. At the same time, the same owners will clip the wings of their pet birds, castrate their cats and dogs and keep fish in small tanks of water which leave very little room for movement. They may well see nothing wrong with any of these practices. People both love and seek to control the natural creatures that live out their lives with them. Such behaviour is characteristic of that tension between appreciation and control attempts in relation to natural things.

Sociologists, anthropologists and historians have found that people's attitudes towards the natural environment are variable. Not all societies exhibit the same attitudes as those with which we are familiar today and recognize from the descriptions above. There is a connection between the real extent of society's control over the natural environment and people's attitudes towards it. It seems that the more successful societies are in exerting a measure of control over the natural environment on which they depend, the more they come to appreciate parts of it as beautiful and as sources of value. The more that people's knowledge of natural environments allows them to manipulate these for their own ends, the less frightened they are of natural processes and

objects. The less frightened people are of natural forces and processes, the more they are able to appreciate them as sources of beauty. And the more they appreciate natural environments as beautiful, the closer they feel themselves to be to their own 'natural' selves. Even in the early twenty-first century, though, the natural processes underlying this beautiful environment continue to demonstrate just how fragile societies' achievements in exerting this measure of control can be.

The year of 2005 saw a series of natural disasters across the world that led to the deaths of more people than the invasion of Iraq and recent terrorist activity combined. Newspapers around the world reported that 2005 was the year that nature 'took revenge' on human beings, and you could be forgiven for thinking that these natural disasters were battles in a long-running war between human societies and the natural environment. In earlier times, natural disasters were often referred to as 'acts of God' because they were so clearly outside the control of human beings. Even today, most insurance companies use this same language to cover those risks such as floods, earthquakes, lightning strikes and so on, that are plainly not predictable or under control. The Bible tells us of 40 days of rain causing a great flood, brought about by a God angered at human wickedness and determined to cleanse the Earth and start again with Noah and his family. Archbishop James Ussher (1581–1656) dated the start of this event precisely, at 7 December 2349 BCE. Working to a different timescale, some modern scientists argue that 65 million years ago, a large meteorite some 10 kilometres in diameter, struck the Earth and, as a result, the climate was so rapidly altered that it brought about the mass extinction of life, including the large dinosaurs. Natural events and disasters have long been the subject of concern in human societies around the world.

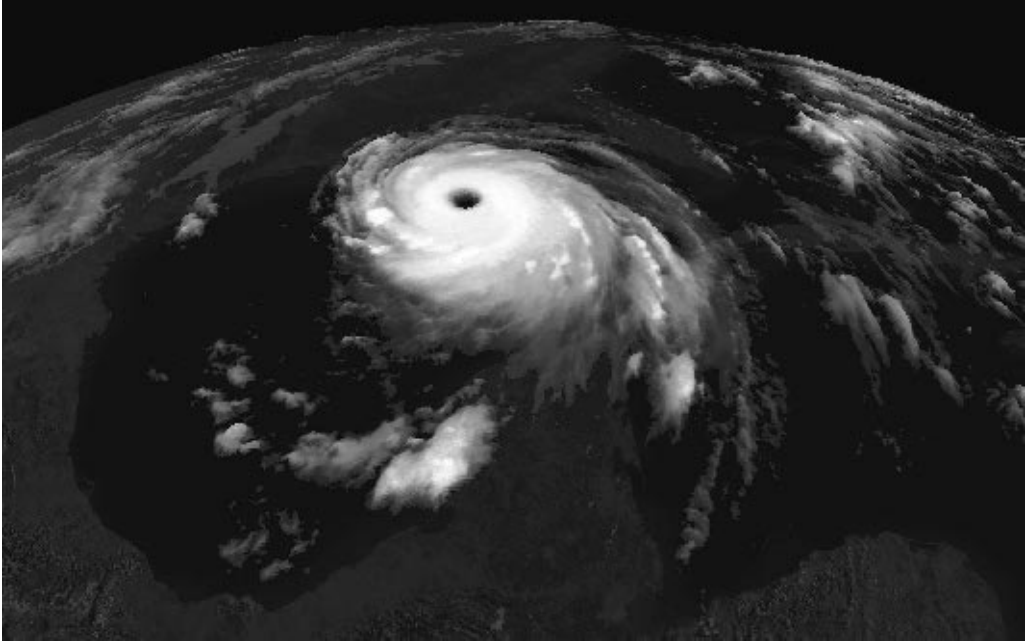
China has suffered many disastrous earthquakes, none more destructive than the one that hit Shensi on 2 February 1556. Because of the high density of population and the pattern of living within cave homes carved in the sides of cliffs, a staggering 820,000 people are estimated to have died. On 16 December 1920 another earthquake in Kansu, China led to the deaths of around 200,000 people. And even as late as 28 July 1976, a night-time earthquake under the city of Tangshan lasting just 23 seconds destroyed most of the city's buildings and killed between 242,000 (official estimates) and 750,000 (unofficial estimates) people. One outcome of such catastrophic events is that China is today one of the leading countries attempting to develop earthquake prediction methods.

Volcanic activity has long been seen as 'the fire of the Gods'. When Mount Vesuvius in southern Italy erupted in AD 79, the cities of Pompeii, Herculaneum and Stabiae were destroyed and hidden under several metres of molten lava and mud, killing between 16,000 and 20,000 people. On 27 August 1883 the small, uninhabited Indonesian volcanic island of Krakatoa exploded. The bang was so loud it is said to have been heard 4,800 kilometres away. Raining ash and rocks, molten

lava, fire and tidal waves killed at least 36,000 people in the neighbouring area. Indonesia is one of the worst affected regions in the world with around 80 recorded volcanic eruptions. Little wonder that human beings had a healthy respect for fire and tried to stave off disasters through their religious practices.

Many other types of natural disasters have occurred, including floods, electrical storms, fogs, hurricanes, droughts and famines, plagues and disease as well as all-consuming fires. However, two of the most deadly episodes in human history were diseases. The bubonic plague epidemics of the sixth, fourteenth and seventeenth centuries killed approximately 137 million people. The fourteenth-century pandemic killed around 20 million Europeans, about one-third of the population at that time. The second was the 1918 flu pandemic, a strain of avian influenza similar to that which was observed in several countries in 2005. Between 25 and 50 million people around the world are believed to have died as a result of the rapid spread of this viral infection in 1918–19. In modern times, societies have increasingly tried to use scientific methods to predict when and where such natural events might occur, and to prevent, treat and eliminate infectious diseases. They do this to try and provide early warning systems and advice on how to limit the loss of life and destruction of property. However, these attempts have only been partially successful, and in 2005 the current limitations of human knowledge and technological forecasting were thrown into sharp relief in a series of natural disasters.

On Sunday 28 August 2005, the Mayor of New Orleans, USA ordered residents to evacuate the city as fears grew about the growing strength of Hurricane Katrina as it approached the Gulf Coast of the USA (see *illus. 1.1*). New Orleans is particularly vulnerable to hurricanes as it is a city built two metres below sea level, defended against incursion from the sea by a system of defensive fortifications called 'levees'. On Monday 29 August, the Mayor's worst fears were realized as Katrina's force battered the city, breaching the levees and flooding around 80 per cent of low-lying areas. Over the next few days it became clear that up to 100,000 residents remained in the city and later estimates suggest that more than 1,300 people had been killed with a further 1,300 missing, feared dead in New Orleans and the surrounding area. Many more remain unaccounted for. American President, George Bush, declared it one of the worst natural disasters ever in the USA and, amidst reports of looting, violence and chaos, troops were sent in to restore order. More than 60 billion dollars was requested for relief efforts and estimates suggest that the disaster may have led to a 0.5 per cent drop in the USA's gross domestic product (GDP). More than 400,000 people lost their jobs and homes and it will take quite some time before New Orleans can return to anything approaching its previous state of normality. In the wake of this disaster, many criticized the failure of the American government to act quickly enough on earlier warnings and for not ensuring that the defensive system had been improved to a satisfactory



1.1 Hurricane Katrina seen from space on 28 August 2005.

Source: USA National Oceanic and Atmospheric Administration (NOAA)/ Department of Commerce (courtesy of NESDIS) 2005

standard much earlier. Society's control attempts had spectacularly failed and people's sense of security was shattered.

On Saturday morning, 8 October 2005, a large earthquake measuring 7.6 on the Richter Scale (a 'major' earthquake) hit the city of Muzaffarabad, the capital of Pakistan-administered Kashmir, causing widespread damage, followed by four smaller aftershocks. Neighbouring towns including Bagh, Rawalakot, Balakot and many others also suffered damage, as did Islamabad, the capital of Pakistan. In Indian-administered Kashmir some 1,400 people were reported to have died with another 5,000 suffering injuries. In India 1,300 were confirmed to have died, but the death toll in the whole affected region has been estimated at between 73,000 and 100,000 people, the vast majority of these in Pakistan itself. Roads were blocked by landslides, buildings collapsed and relief efforts were hampered by difficulties reaching the more rural sites of the disaster. The landscape resembled a war-torn environment and up to 4 million people have been affected. The Pakistan authorities raised concerns about the effects of a cold winter on those who survived, but who had nowhere to live and work. Once again, a natural disaster shows us the immense power of natural processes that are beyond the control of human societies, whether relatively rich or poor, to disrupt the normal life of societies (Blaikie et al. 2003).

However, the worst loss of life caused by natural forces came during and after the undersea earthquake and subsequent tsunami around the Indian Ocean coastline at the end of 2004 (see box 1.1), which caused an enormous loss of human life. Taken together, it is hard to avoid the

Box 1.1

On 26 December 2004 came the most catastrophic natural disaster of recent times. An undersea earthquake in the Indian Ocean measuring 9.3 on the Richter Scale – the second largest ever recorded – shook the earth for eight minutes, raising the seafloor by 20 metres. This seafloor movement produced a huge wave of water – called a tsunami – forced outwards from the centre of the quake. Just 30 minutes later, and before any official warning could be issued, the relentless wave reached the city of Banda Aceh, sweeping everything before it, killing tens of thousands of residents and tourists. The waves were still powerful enough to cause deaths, injuries and destruction in Sri Lanka, India and the surrounding regions. The final death toll from this natural disaster has been estimated to be around 300,000 people, with millions more made homeless and unemployed (see illus. 1.2).

Although much more is known today than in the past about what causes earthquakes, where they are likely to occur and how they can be monitored, forecasting when and where they will happen is much more difficult

and monitoring systems are expensive. Human knowledge and social organization have not yet reached the point at which earthquakes pose no danger, though fewer people today see them as the divine punishment handed down by angry Gods. And though many local people did view this disaster in religious terms, the authorities consulted geologists and seismologists for information and advice on how to guard against a recurrence, rather than priests and religious authorities. Hence, the **secularization** of knowledge and the dominant position of science in relation to other ways of knowing about the natural world has not eliminated the religious means of orientation altogether.

Geologists tell us that earthquakes are the product of natural processes, of shifting tectonic plates carrying whole continents across the globe. Where they meet, tectonic earthquakes can occur, as one plate slides below another. Clearly, human societies, whether relatively poor or relatively wealthy, cannot afford to ignore these natural processes and continue to improve their knowledge and understanding of them.



1.2 A submerged village on the Sumatran coast after the 2004 tsunami.

Source: Photo by Philip A. McDaniel, USA Naval Media Centre, 2004

conclusion that even in the twenty-first century, and with all of the technological wizardry of modern life, humans do not control or dominate the natural environment. In many ways, they remain dependent on and are sometimes at the mercy of natural processes and events, struggling to manage their relationship with the natural environment.

Natural and Artificial Environments

Look around and note down those things that you think are 'natural' and those that are not. Ask yourself, why are some things just not 'natural'? Looking out of my own window I can see trees, flowers, birds, clouds and rain (it does occasionally rain in Scotland). All of this seems so obviously part of the natural environment, and I experience it as pleasant to look at. On the other hand, through the same window I can also see roads and cars, concrete walls, houses and streetlights. None of these appears to form part of that same natural environment and I don't particularly enjoy looking at walls or roads and could well do without the noise and pollution caused by cars, though I drive one myself. They are not alive and, more importantly, all of them have been created by human beings. Surely this makes them somehow 'artificial' rather than natural. You may well agree with me. But is this commonsense distinction between the natural and the artificial, the products of nature and the products of human activity really such a firm one? Is it solid enough to withstand examination?

On reflection, the trees I observe were planted by human beings some time ago and they are regularly trimmed and shaped by the local council. Last year, one was cut down altogether, as it leaned too far over the road and was unstable in high winds. These trees are certainly alive, but they also owe their very existence to the human beings who planted them. Does this make them natural or artificial? Exactly the same question can be asked of the flowers. But are birds different? Well, they are alive, they fly wherever they want to and are apparently unaffected by human beings who keep other birds in cages. However, it is estimated that there are around 5 million domestic cats in the UK, which kill many millions of sparrows, blackbirds and other garden birds every year. Many people also enjoy feeding these garden birds, especially in winter, thus ensuring that more of them survive the winter than might 'naturally' be the case. On the other hand, some other birds are not welcome in the coastal towns of Britain. Seagulls scavenge in human rubbish causing mess and littering towns, and local authorities sometimes cull them to reduce the problem. Human actions therefore make a significant contribution to bird populations in the UK, helping to determine how many of them there are and which ones are more likely to thrive. Indeed, one of the most influential environmentalist books ever written, Rachel Carson's *Silent Spring* (1962), takes its title from the destructive effects of an agricultural pesticide known as DDT, on wild bird populations. The book's title refers to the loss of birdsong as a result of

the poisoning of bird populations. Does all of this make wild birds somehow artificial as well?

Conversely, think about the obviously 'artificial' things I noted above. Roads and cars are largely made from rocks, minerals and metals extracted from the ground. Strangely though, when they were actually in the ground, people probably saw them as part of the natural landscape and took pleasure in looking at them. It is only when quarries are established and rocks and minerals removed for use in the road-building process, eventually to be driven on by motorists in their polluting vehicles that we see them as somehow artificial. Something similar could be said about concrete walls, houses and streetlights, all of which again begin as 'natural' products before being turned into something 'artificial' and useful for people. And what of human beings? Are they not part of nature themselves? If they are, then can anything they do or anything they produce ever be described as artificial or unnatural anyway?

It is quite common in everyday conversation, and not a little sociological discourse, to think and talk about *natural* and *artificial* environments. The way I defined 'natural environment' above makes some concession to this commonsense way of thinking about the difference between, say, an ocean and a city. It surely makes little sense to see cities and oceans as similar in kind. One seems natural, the other – well, for want of a better word, artificial. It is quite common for environmental campaigners and some sociologists to describe cities and urban environments as 'artificial' in comparison to the 'reality' of nature (see Goldsmith 1988; Giddens 1990). But *why* are they 'artificial'? What makes them so?

Perhaps the answer is that people create cities, and if there had been no people, then the natural environment would not have spontaneously evolved cities. Let's pursue this a little further. Are cities really 'artificial'? It is certainly true that people create cities, but does that fact alone mean they are not part of the natural environment? As we saw above, people are animals too. If badger setts, birds' nests and rabbit warrens are natural phenomena, then surely that makes cities natural too. Let's try another answer. Maybe cities are artificial not just because of their human creation, but because they contain little of the non-human natural environment within them. Cities are largely built from concrete, brick, tarmac roads and industrial estates, and this means that city-dwellers live, in the main, in an artificially constructed environment. And that is not to mention the pollution from cars and industry that affect the natural air quality we all have to breathe. Again though, just how artificial is this way of living? The material used in roads and buildings comes from quarrying 'natural' rock, and pollution from cars is a mixture of gases, most of them found elsewhere in the natural environment, albeit not in the same quantities or density. Of course, cities are not just 'concrete jungles' either. They have parks, lakes, gardens and lots of wildlife. Are these also somehow artificial,

having been designed, created and maintained by people? It is perhaps not quite so obvious that cities are unnatural things compared to natural environments.

Now take that ocean we mentioned as so obviously natural by comparison. Is it too not affected by human activity? Ships sail across it, toxic waste is dumped into it, wars have been fought across it and oil rigs drill into the seafloor extracting the oil that literally fuels all of those cars that cause so much pollution and promote ever more road-building in cities. Can we say with any certainty that anything is purely artificial or purely natural when human activity now affects even the climate and weather systems? In their attempts to prosper, human beings have diverted rivers, created new lakes, drained swamps and brought some animal species to the brink of extinction whilst preserving others in carefully controlled environments called zoos and wildlife parks. So, although what people mean by 'the natural environment' seems like common sense, sociologically, things are not so simple.

The problem we have run into here is caused by our neatly separating out the 'natural environment' from 'society'. But increasingly, sociologists and social scientists have come to see this separation as unhelpful and misleading. Society and the natural environment are inevitably intertwined and perhaps we need a better way of thinking about their ongoing relationship that gives adequate weight both to natural environmental processes and human actions. But this is an issue for chapter 2 and beyond.

Conclusion

Today, when tourists travel the world looking for natural beauty (and 'better' weather), when environmentalists campaign against roads and industrial development and when some people genuinely believe that animals have the same rights as human beings, it is clear that natural environments and natural things have become much more highly valued than they were in the early modern period. The trend of modern psychic and emotional life is towards preferences for country life over towns and cities, untouched wilderness rather than development, conservation of nature over its conquest and a concern for the welfare and even rights of animals. But such a widespread transformation of social attitudes has taken many generations and is bound up with industrial and urban development. During the process, the dominant meaning attributed to nature has also been transformed in the ways described above.

So far, we have barely scratched the surface of some very complex and fascinating debates about the relationship between society and nature. There is much interesting research currently taking place in the natural and social sciences, including, somewhat belatedly, sociology. By the end of the book my hope is that we will better understand how these recent sociological and social-scientific studies of human-environment

relationships are changing the way that we think about environmental issues. Consequently, they also ought to have some impact on what we might be able to do or indeed, may have to do to resolve at least some of the pressing environmental problems troubling societies across the world.

Readings

A good place to begin is with David Harvey's discussion of the meanings of 'environment' in his 'The Nature of Environment: The Dialectics of Social and Environmental Change' (1993). This is not an easy read, but it is worth the effort. From here, an exploration of Western ideas of nature and the natural can be had from Peter Coates's *Nature: Western Attitudes Since Ancient Times* (1998). Keith Thomas's *Man and the Natural World: Changing Attitudes in England 1500–1800* (1984) has been enormously influential and contains much fascinating historical material. I thoroughly recommend it. A parallel sociological account is Norbert Elias's *The Civilizing Process: Sociogenetic and Psychogenetic Investigations* (2000[1939]). However, readers will need to find their way through this book's main argument to lift out Elias's ideas on natural environments. A book of original source materials covering the transformation of attitudes and sensibilities referred to in this chapter is Alasdair Clayre's (ed.) *Nature and Industrialization: An Anthology* (1979). See also Derek Wall's (ed.), *Green History: A Reader in Environmental Literature, Philosophy and Politics* (1994).

The story of fire is wonderfully told in Johan Goudsblom's *Fire and Civilization* (1992). Piers Blaikie et al.'s *At Risk: Natural Hazards, People's Vulnerability and Disasters* (2003) is a good guide to the social aspects of natural disasters.