

ALTERED STATES

America since the Sixties

JEREMY BLACK

REAKTION BOOKS

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Chapter 1

Background

The flow of time, distant and recent, is felt in the moment. Recent history does not begin abruptly at any given date, and that of the USA, the country, its people and their government, cannot be abstracted from what came earlier. Patterns of causation and habits of thought provided, and provide, multiple links. Structures, institutions, narratives and memories are major parts of this situation of, at once, timelessness and the ever-present reality of time. Continuities are established by terrain and climate and are joined by the impact of past migration and constitutionalism. Yet the space available here does not permit an account of this deep history. Instead, we begin with an overview of some of the major developments and events earlier in the twentieth century.

At the start of the twentieth century America was already one of the world's leading states. It was also a prime beneficiary of the global economy, which was then characterized by free trade and international capital flows, and by large-scale migration. International investment from Western Europe helped to drive the American economy, and was a testimony to informed confidence in its profitability and growth. The 'huddled masses' that sailed to America were another testimony, one of even greater longer-term significance. Modern America owes much to their hopes, assumptions, efforts and experiences.

In 1914 American economic output was equivalent to that of the whole of Europe. By 1918 it had the capital to match. The American economy benefited from substantial natural resources, including coal,

iron, copper, silver and timber, a large domestic market, extensive immigration, an openness to foreign investment, a legal code that protected property, a governmental system that supported economic growth and a political practice that avoided extremism. America's innovatory ethos derived in part from the shortages of skilled labour throughout the nineteenth century. Britain, in contrast, had invented and invested in heavy machinery in the early phases of the Industrial Revolution, making wholesale replacement expensive, while its plentiful supplies of cheap, skilled labour in any case militated against maximizing technological inputs.

America had demonstrated its power in war with Spain in 1898. The conquest of Cuba and Puerto Rico and the arrival of American troops in the Philippines followed rapid naval victories. The peace treaty with Spain left Puerto Rico, Guam and the Philippines to the USA, but, in the last, control was enforced only after nationalist opposition was suppressed in a bitter counter-insurgency war. By 1914 America was a major power in the Pacific, with Hawaii, Midway, Johnston, Palmyra, Tutula and Wake Islands, as well as Guam and the Philippines, and also increasingly assertive in Central America and in the Caribbean. American power was dramatized in the new geopolitics of the Panama Canal, which provided a link for warships and merchantmen between the eastern and western seaboard of the USA. A project originally – and unsuccessfully – begun with French capital ended as a triumph for American engineering and power: in 1903 Panama became an independent state carved out from Colombia under American protection, and the US gained control over the Canal Zone. America also demonstrated its power in 1907–9, when the sixteen battleships of the 'Great White Fleet' sailed round the world.

Already powerful, the USA was perhaps the prime beneficiary of World War One (1914–18), a conflict that was centred in Europe and hit its economies hard. The European powers, especially Britain, sold many of their foreign investments in order to finance the war effort, and this increased American control of the domestic economy. The disruption of European trade and the diversion of manufacturing to war production encouraged the growth of manufacturing elsewhere, and the USA, which did not enter the war until 1917, benefited most of

all. The British war effort rapidly became heavily dependent on American financial and industrial resources. American forces on the Western Front played a role in the German defeat in 1918, and the prospect of many more American troops arriving was crucial in signalling a sense of shifting advantage towards the Allies.

After the war, the USA refused to join the League of Nations as President Wilson had planned, and therefore did not act as guarantor of the post-war international settlement, a fatal weakness for the settlement and the League. Furthermore, although the USA had purchased the Danish West Indian Isles (St Croix, St John and St Thomas) in 1917, it made no attempt to gain territories as a result of the war. In contrast, in a great colonial handout, Australia, Belgium, Britain, France, Japan, New Zealand and South Africa all gained control over parts of the German and/or Ottoman empires, as mandated territories under League of Nations' supervision. This gave Japan the Caroline, Mariana and Marshall Islands, which challenged the American position in the Western Pacific.

But the USA set the terms of the world economy. It became not only the world's largest industrial power, but also the principal trader and banker. New York replaced London as the world's financial centre. American industrial growth satisfied domestic demand, both in well-established sectors and in the growing consumer markets for cars and 'white goods', such as refrigerators and radios. Consumerism was encouraged by the availability of credit. The spreading use of electricity helped economic growth and the rise of plastic as a product affected several branches of manufacturing. New plant and scientific management techniques helped to raise American productivity, which increased profitability and consumer income, and, therefore, the domestic market.

THE 1920S

At the same time, World War One had put a brake on the liberal progressiveness seen in American society and political culture in the early years of the century. The war was followed by a conservative reaction

that reflected hostility to socialism and concern about the example of the Russian Revolution. As a consequence, the 1920s saw an emphasis on a non-interventionist role by the state, although such a bland remark does not do justice to the depths and consequences of social tension in the years 1919–22, which included a very high level of labour conflict that had wider political and ethnic resonances. These included high levels of race violence between blacks and whites between 1917 and 1921, and widespread concern about anarchism and radicalism that focused on immigrants and led to repressive government action. Indeed, the us army devised War Plan Whites for action in the event of left-wing insurrection. Warren Harding, Calvin Coolidge and Herbert Hoover, the successive Republican Presidents between 1921 and 1933, benefited from the reaction against change, immigration and urban life that led to a stress on supposed white and Protestant values. This reaction contributed directly to Prohibition (1920–33), the banning of alcohol, which was a focus of the culture wars of the age, and which both criminalized what had hitherto been seen as normal and provided a major source of opportunity for organized crime. Prohibition, however, was also the last gasp of Progressivism and, in that light, was a reminder that the reformist-change impulse can overlap what is seen as reactionary. The reaction against change also led to a powerful revival of the anti-black Ku Klux Klan in the years 1921–6.

Although the connection was not a directly causal one, there was also a determination to control the ‘informal’ American empire in Central America and the West Indies. But this proved much harder than had been anticipated. In the 1920s popular guerrilla movements in Haiti and the Dominican Republic proved able to limit the degree of control enjoyed by the occupying American marine forces who found that ambushes restricted their freedom of movement. American bombing was no substitute, particularly in the face of guerrilla dominance of rural areas at night. Despite the fact that Americans were not defeated in battle, and in 1922 the guerrillas in the Dominican Republic conditionally surrendered, the marines sent to Nicaragua in the years 1928–33 failed to defeat a rebel peasant army, while the withdrawal from Haiti, which the USA had occupied from 1915 to 1934, owed much to a sense of the intractability of the conflict.

Although not equivalent to the economic growth of East Asia after World War Two, American economic expansion was not matched elsewhere. As a result, the USA became the major international lender in the 1920s. But American protectionism and economic strength reduced imports, so that other countries were unable to finance their borrowing from the USA – a major challenge to fiscal stability. Furthermore, the restrictions on immigration by the Emergency Quota Act of 1921 and the Immigration Act of 1924 helped to restrict the global benefit from American growth.

The overheating American economy collapsed in October 1929 (the Wall Street Crash), the result of a bursting speculative boom in share prices in New York. This bursting of an asset price bubble became far more serious when the inexperienced central bank cut the money supply, a mistake that was not repeated in 1987, or in 2000 with the dot.com crash. The tightening of the financial reins, which included calling in overseas loans, caused financial crisis elsewhere. At the same time, the Hawley-Smoot Act of 1930 put up American tariffs and depressed demand for imports. Other states followed suit, leading to a worldwide protectionism that dramatically cut world trade, and therefore the economic system that the USA dominated. As export industries were hit, unemployment rose substantially, to nearly 24 per cent in the USA in 1932, by which time manufacturing was at only 40 per cent of capacity. Depressed demand also hit commodity producers, such as mining and forestry, and agriculture.

THE NEW DEAL

The Slump and the subsequent Depression caused a notable fall of confidence in the old market economy. Despair led to higher levels of protest and violence. It also helped to put pay to the *laissez-faire* state and to end self-help in social welfare. Instead, there was greater federal economic intervention. The welfare and economic reforms known as the New Deal, which the Democrat Franklin Delano Roosevelt introduced after he became President in 1933, satisfied the powerful political need to be seen to be doing something. In gaining the initiative, this

set a tempo for change that resisted deflation and kept non-governmental populist options at bay. Roosevelt backed public works and established work-creation schemes, such as the Works Project Administration, to fight unemployment. This led to the development of infrastructure, especially roads. Well-publicized work schemes helped to create a sense that a corner had been turned.

Partly as a result of such pump-priming measures, the federal debt rose from \$22.5 billion in 1933 to \$40.5 billion in 1939. Roosevelt favoured balanced budgets and put up taxes on the rich, rather than relying on deficit financing – a policy that contrasts greatly to that of recent years. He established social security, the Social Security Act being passed in 1935, but this was a very limited measure, not the state socialism decried by some alarmist critics. A combination of the conservative nature of American public opinion, hostility to interference with property rights, and growing political opposition from 1937, prevented him from doing more. Rather than during the New Deal, it was only in World War Two that the major moves towards a stronger and more expensive American state were made. Unemployment remained high in the 1930s, but GNP per capita recovered, rising from \$615 in 1933 to \$954 in 1940, and those in work became considerably better off, which increased domestic demand.

Roosevelt was rewarded with relatively easy re-elections in 1936 and, to a lesser extent, in 1940. He benefited from a coalition between Southern Democrats and their big-city Northern counterparts. If, in part, this was a yoking of contrasting traditions, it was typical of the coalitions that made up American politics, particularly when ideological conformity was of limited importance. Instead, politics owed much to coalitions between interests that were largely grounded in particular geographical areas and wielded power through dominance of state and local governments. This regionalism of politics has ebbed in recent decades, because ideological coherence has become more important, the Republicans becoming more clearly conservative. Phrased differently, politics has since become national rather than confederal, a process that created serious strains for many established party machines.

In the 1930s, in contrast, the Democrats were the party of the Solid South, resentful of defeat in the Civil War of 1861–5 at the hands of the

Republican North, and also brooding on the subsequent rule of the South during the Reconstruction era (1865–77) by Federal troops, outsiders and blacks. The Democrats thus stood in the 1930s for states' rights as the guardian of the (white) Southern way of life, at the same time as being the party of Northern outsiders – trade unionists and immigrants, particularly Catholics and Jews. The Republicans, in contrast, were the WASP (White Anglo-Saxon Protestant) party of the former Northern states, and were particularly the party of business and the affluent. They were very weak in the South: Louisiana's first Republican senator after Reconstruction was only elected in 2004.

WORLD WAR TWO

During World War Two, which the USA entered in 1941, American industry developed rapidly in one of the most dramatic economic leaps of the century. The Americans mobilized their resources far more speedily and extensively than they had done in World War One. The country's overall productive capacity increased by about 50 per cent between 1939 and 1944, a major shift that was of lasting importance to the American economy, and which indicated the close relationship between international and domestic circumstances. The dynamic of American resource build-up relied on lightly regulated capitalism, not coercion. Having had cool relations with much of business during the 1930s, Roosevelt now turned to them to create a war machine. The War Resources Board was established in 1939, in order to ready industry for a war footing, and the Office of Production Management under William Knudsen, head of the leading car manufacturer General Motors, followed in 1941. The attitudes and techniques of the production line were focused on war. \$186 billion worth of munitions were produced, as well as an infrastructure to move them. By 1943–4 the US was making about 40 per cent of the world's total output of munitions. In 1944 it produced 89 million tons of steel, about half of the world's total production. Of the 42 million tons of shipping built by the Allies during the war, most were American-built. Many were Liberty Ships, often constructed in ten days using prefabricated components on production lines. The organizational ability to manage

large-scale projects and to introduce new production processes was important: for example, all-welded ships replaced riveting, which speeded up production.

The flexibility of American society was a direct help: by 1944, 11.5 per cent of the workers in the shipbuilding industry were women. Major changes in the geography of America's people and economy flowed from the development of war production, particularly of aircraft and ships. The population of Washington, Oregon and, in particular, California, where many of the plants were located, rose greatly: by the end of the war, eight million people had moved permanently to different states. Some of the internal migrants were black: about 700,000 black civilians left the South, especially for California. The opportunities that war industrialization provided for black workers helped to loosen racial, as well as gender and social relations, although much segregation remained, and racial tension led to serious outbreaks of violence, particularly in Detroit in 1943. Nevertheless, there was nothing like the coercion or tension involved in the German or Soviet war economies. The USA benefited from its already sophisticated economic infrastructure. It surmounted the domestic divisions of the 1930s, in order to create a productivity-oriented political consensus that brought great international strength. The resources, commitments and role of the federal government all grew greatly, and taxes and government expenditure rose substantially. Government spending totalled \$317 billion, and nearly 90 per cent of this was on the war.

The USA played a crucial role in the defeat of Germany and by far the leading part in the victory over Japan. When the war ended, American troops were on the River Elbe in central Germany and American bombers ruled the skies over Japan. The dropping of two atomic bombs on Japan in August 1945 was not only decisive in leading to its surrender, but also demonstrated America's unique technological capability and its ability to apply scientific advances. About \$2 billion was spent in the rapid creation of a large nuclear industry. The electro-magnets needed for isotope separation were particularly expensive, and required 13,500 tons of silver. Roosevelt's successor, his former Vice President, Harry Truman, issued a statement shortly after the first atomic bomb was dropped on Hiroshima, in which he declared:

‘Hardly less marvelous has been the capacity of industry to design, and of labour to operate, the machines and methods to do things never done before, so that the brain child of many minds came forth in physical shape and performed as it was supposed to do.’

At the time, there was very little controversy about the decision to drop the bombs, although it subsequently became an issue in the culture wars that divided liberals from conservatives (see chapter Five). When the National Air and Space Museum planned an exhibition for 1995 centred on the *Enola Gay*, the plane from which the bomb was dropped on Hiroshima, popular opinion berated the critical script as unpatriotic, and forced the substitution of a curtailed display. By contrast, in 2003, when the plane was displayed at Dulles Airport, there were protests that the effects of the bomb were not discussed. The plane was dented when someone threw a container of red paint at it, symbolizing blood.

THE POST-WAR INTERNATIONAL ORDER

At the end of World War Two in 1945 the American economy dominated the world even more than at its start. Of the other victors, the Soviet economy had been devastated and Britain had large debts. It was America that established the new economic order, and this reflected the global goals it was seeking. The international free trade and capital markets that had characterized the global economy of the 1900s were slowly re-established in the non-Communist world. The availability of American credit and investment was crucial to this process, since among the major powers only the USA enjoyed real liquidity in 1945. The dollar’s role as the global reserve currency in a fixed exchange-rate system ensured that much of international trade, foreign-exchange liquidity and financial assets were denominated in US currency.

Under the Bretton Woods Agreement of 1944, American-supported monetary agencies, the World Bank and the International Monetary Fund (both of which had American headquarters), were established in order to play an active role in strengthening the global financial system. The Americans did not want a return to the beggar-my-neighbour deval-

uation of the 1930s. Free trade was also actively supported as part of a liberal economic order, and this was furthered as America backed decolonization by the European empires, and the creation of independent capitalist states, which were seen as likely to look to the USA for leadership. The General Agreement on Tariffs and Trade (GATT), signed in 1947, began a major cut in tariffs that slowly re-established free trade and helped it to boom.

The years 1945–73 marked a period of rapid economic development, later characterized as the Long Boom. The American model played a crucial role in the West. The economy produced consumer durables in large quantities, affordable to many, and the USA became a society of mass affluence, which helped to make it more generally attractive, not least as Hollywood and the television spread positive images of American life. These years were also later regarded as the formative ones for modern American society and culture, with contrasting accounts of what was best about, and for, the USA. This remains the case today, not least as culture wars are presented in terms of competing images derived from particular views of the 1950s and the 1960s. A society that is at once conservative and progressive lives in the past as much as in the future.

Furthermore, the period 1945–73 was a formative one in that there was no return to a peacetime of non-intervention and small government comparable to that which had followed World War One. Instead, the USA played the main role in the confrontation with Communism known as the Cold War. World War Two was followed by external commitment in the shape of membership of the United Nations and its Security Council, as well as the occupation of Japan and parts of Germany and Austria, and the placing of the former Japanese territories in the Western Pacific under American trusteeship. However, there was also demobilization in the late 1940s as the ‘peace dividend’ was taken. The number of amphibious ships fell from 610 in 1945 to 81 in 1950, and, in 1949, the army contained only one armoured division. Nevertheless, driven by concern about Soviet control of Eastern Europe, in 1949 the USA was a founder member of the North Atlantic Treaty Organization (NATO), creating a security framework for Western Europe – a clear contrast with its failure to support the League of Nations after World War One.

Furthermore, the military situation changed as a result of Communist North Korea's invasion of South Korea in 1950. In the resulting Korean War (1950–53), the USA played the leading role in the United Nations coalition that came to the help of South Korea, driving back the North Koreans and then resisting a large-scale intervention by (Communist) China. The Americans suffered 33,741 battle deaths and 2,827 non-battle deaths. The war also led to a major increase in military expenditure, as a percentage of total government expenditure, from 30.4 per cent in 1950 to 65.7 per cent in 1954. A military-industrial complex came to play a greater role in the economy and governmental structure. Conscription was revived, and the size of the armed forces expanded greatly, the army being increased to 3.5 million men. This helped to give the 1950s their particular character.

The Korean War greatly increased American sensitivity to developments and threats in East Asia. This led to an extension of its containment policy towards the Communist powers, the maintenance of American bases in Japan, a military presence in South Korea and a growing commitment to the Nationalist Chinese in Taiwan. From 1950 substantial American forces were also stationed in Western Europe, where they remained until the end of the Cold War. Behind the front line, the USA encouraged political, economic and cultural measures to limit support for Communism. It also pressed on with the development of advanced weaponry. The USA first tested a hydrogen bomb in 1952, destroying the Pacific island of Elugelab. Two years later, John Foster Dulles, the Secretary of State, outlined a willingness to launch massive nuclear retaliation against any Soviet attack. In response to NATO's vulnerability, President Eisenhower pushed the use of the atom bomb as a weapon of first resort, and in 1953 he even threatened to use it in order to bring the Korean War to an end. The deployment of B-52 heavy bombers in 1955 upgraded American delivery capability, but the Soviet launch in 1957 of Sputnik 1, the first satellite, led to a fear of Soviet rocket attack. This led the USA to step up its long-range ballistic missile programme, and in 1958 the first one was fired. From the outset, the space race was linked to military dominance. The prospect of nuclear war cast a shadow over the widespread prosperity of 1950s America, particularly after the Soviets acquired a rocket capacity.

THE 1950S

Another result of the Cold War was the National Security State. The CIA was created under the National Security Act of 1947. Anti-Communism reached its spectacular apogee in the claims about Communist influence in Hollywood and government made by Senator Joseph McCarthy, but in practice it was far more wide-ranging and contributed to the conservative ethos of the 1950s, which was reflected in the Republican Eisenhower presidency of 1953–61. The Democrats were portrayed as soft on Communism, and Eisenhower's re-election in 1956 with a margin of nine million votes displayed widespread satisfaction with the economic boom and social conservatism of these years. There was an upsurge in religiosity as church membership and attendance rose, and Eisenhower encouraged the addition of 'under God' to the Pledge of Allegiance and 'In God We Trust' on the currency. At the same time, the legacy of the Depression was such that Eisenhower left the New Deal intact. The Eisenhower years were to be the background to modern America. In many respects, the new social and political currents of the 1960s were to be a reaction to this conservatism, yet many of the shifts of the 1950s had a lasting impact, not least the growing suburbanization and car culture.

In the 1950s there was a major geographical shift in the pattern of American life. In the late nineteenth century the country had been dominated economically by a portion of the eastern seaboard – essentially from Baltimore to Boston, and the abutting area west to Chicago, Milwaukee and St Louis. Apart from financial and corporate dominance, this was also the region of manufacturing activity and of much of the population. Given the modest range of federal government activities, the remainder of the USA was essentially self-governing, through largely autonomous states, but, nevertheless, there was a feeling in the South and the West that the East dominated them economically, financially and politically. This lay behind much of the populism of the period and was the background to the anti-big business, trust-busting of the early twentieth century. However, the dominance of national life by the powerful zone remained a factor, and it was there that much of the industrial growth of the first four decades of the twentieth century occurred, not least in the car industry.

Wartime industrial activity shifted the balance of economic activity to the West Coast. This was part of a greater focus on the Pacific littoral that included the movement of many troops through West Coast ports to fight Japan. The shift might have occurred anyway, but the war accelerated it. Large-scale internal migration followed. In part, this was local, with suburban expansion reflecting the spreading use of cars, as well as decentralization in employment, and, increasingly, leisure, education and other service activities. Suburbanization was further encouraged because it was the product not only of movement from the inner cities but also from the rural heartlands. The shift from the land was a major theme in mid-twentieth-century American history.

There were also important changes in the relationship between regions. The South and West became far more important in economic and demographic terms during the 'baby boom', a period of rapid population growth. If California's growth attracted most attention, there were also spectacular developments in the 'New South', for example, the growing centres of Atlanta, Dallas and Houston, as well as in other parts of the West, such as Seattle. Nevertheless, although the population centre of the country moved westward in the 1950s, in 1960, as in 1950, it was still in southern Illinois. In part this reflected the continued demographic weight of the North-East. In 1960 the national population density was 50.5 people per square mile, but Massachusetts, Rhode Island, Connecticut and New Jersey had more than 500 people per square mile. When Alaska and Hawaii became states in 1958 and 1959 respectively – which, in part, reflected their Cold War strategic role and the movement there of veterans – the geographical centre of the country moved north and west, from northern Kansas in 1958 to western South Dakota in 1960, but, with 0.4 people per square mile, Alaska had little impact on national population trends. Idaho, Montana, Nevada, New Mexico, Wyoming and the Dakotas all also had fewer than ten people per square mile in 1960. In demographic terms, Florida's growing importance lessened the westward impact of the rise of California. Florida, Nevada and Alaska were the states with a population increase of more than 75 per cent in 1950–60, followed by Arizona with 50–75 per cent, and California, Colorado, Connecticut, Maryland, New Jersey, New Mexico and Utah with 25–50 per cent.

Culturally, a shift to the South and, far more, to the West challenged the influence of the East and, particularly, of New York. Indeed, there was a growing assertion on the part of regional centres. The most dramatic in the 1950s was the Beat movement, which focused on San Francisco. Popular music frequently still retains a regional flavour, as with crunk, a form of hip-hop in Atlanta. Alongside regional assertion, there was a move in the national focus of cultural activity, with a diminished emphasis on New York. This move had already happened with cinema, but television remained more New York-oriented. In 1972, however, the highly popular NBC Tonight Show, presented by Johnny Carson, moved from there to Burbank in the Los Angeles conurbation.

Space is defined by human activity. In the 1950s this involved the overcoming of the constraints of distance, most significantly with the extensive Interstate Highway System pushed forward by the Eisenhower administration, in part in order to help speed military response to any major war, and also with the development of civil aviation. The new transport system also helped to spread national brands. This was obvious to travellers, since chains selling homogenous products replaced local restaurants and hotels, but it was also important to companies seeking to create national markets for their products. The process was aided by television advertising. Television, cinema, popular music and sports' teams playing for national audiences all contributed to, if not homogenization, at least a growing awareness of what became national trends. This, ironically, was to provide a stronger adversarial basis for politics. In part, this was because some felt challenged by the more insistent emphasis on the national rather than the local and the regional, while others were able to accept this trend. A shifting emphasis towards national issues – and politicians – was encouraged by the growth of the federal government, which also emphasized a focus on the pursuit of views and policies at the national level. This was to link political contention to culture wars.

Chapter 2

Changing Country

The American environment has never been constant. There was no primitive state of perfection, rudely shattered by human action, or a holistic balance subsequently destroyed by the arrival of European settlers, however large a role such beliefs have played in discussion of environmental history. But the human impact on the American environment over the last 50 years has been especially striking. Not only has the context within which humans live and operate changed greatly, but all the other species living in America have also been affected. Furthermore, the environmental movement has testified to the extent to which a new and troubling sense of where human history will lead, or indeed end, has developed. This movement was not new – the influential Sierra Club was founded in 1892 – but it became much stronger. The period since the 1960s does have a unity in the sense of widespread concern about environmental pressure, if not calamity, and has helped to provide a narrative of issues for debate and contention. In his futuristic novel *Hello America* (1983), J. G. Ballard predicted a radical change: ‘As they looked back over the stern-rails of the convoy ships . . . the departing Americans could already see the desert moving in to take over their towns and suburbs . . . The old dreams were dead, Manson and Mickey Mouse and Marilyn Monroe belonged to a past America.’

In part, the human impact on the environment is a result of the tremendous growth in knowledge about it, for this increase in human capability enabled exploitation and impact, linking scientific advance and economic drives to environmental pressures. The most dramatic example was provided by the mapping of resources by satellite-based systems. This was an aspect of the American dominance of the Space Age, a dominance that, in the face of Soviet competition in the 1950s and '60s, had seemed in embarrassing doubt. The Soviets launched an unmanned satellite in 1957 and, in 1961, put the first man into orbit. The Americans, however, were clearly seen as winning the Space Race when they landed men on the Moon in 1969, a success that was broadcast around the world in another triumph of American technology, which provided a novel sense of immediacy. The Apollo space missions also left photographs of the Earth as a legacy. If this was a potent image of one world, it was one very much derived from America. Similarly, in 1981, as another instance of American technology, the first orbital flight by the space shuttle took place, although some commentators saw the subsequent troubles of the programme, including the loss of shuttles, as indicators of over-reach or, at least, a failure of due diligence on the part of the National Aeronautics and Space Administration (NASA).

From the 1970s NASA also used remote sensing by Landsat imagery in order to generate satellite images of the Earth's surface from electromagnetic radiations outside the normal visual range – an enhancement of human capability that was a common theme of the technology of the age. The use of different wavelengths enabled viewers to see, and therefore 'know', different aspects of the world. Infrared, for example, is especially valuable for vegetation surfaces and for water resources.

The Americans used satellite technology for both public and private purposes. As so often in American history, consumerism and security were crucial and related themes. Global Positioning System navigation devices, particularly for cars, boats and private planes, massively enhanced the ability to plan an individual course across the environment, while media and telecommunications usage of space became crucial to the business and leisure worlds. Meanwhile, concern about

national security led, from 1983, to the 'Star Wars' initiative, a commitment to space-based systems for detecting and intercepting missile attacks that has been maintained, despite only limited success.

While outer space was used to alter paradigms on Earth, unmanned space missions were sent to explore the solar system. Major advances in recording and communications technology enabled these missions to provide information on what humans could not reach. For example, two *Viking* probes, launched in 1975, landed on Mars in order to search for life. They were unsuccessful, as were the two robot rovers that landed on the planet in 2004. The *Voyager* mission, launched in 1977 to visit the outer planets, sent back pictures that also failed to record signs of life, as did the cometary probe *Deep Impact*. In 2003 President George W. Bush announced a major new initiative designed to send people to the Moon, as a centrepiece of a revival in human space flight, but this may fall victim to budgetary cuts.

The absence of an encounter with extra-terrestrial life forms ensured that there was no fundamental shift in American debates about the relative nature of human values and the role of religious and secular narratives and analyses. This was also in marked contrast to the predictive power of the imagination, since aliens frequently appeared in literature and on the screen, and profitably so, as in *Alien* (1979) and *War of the Worlds* (2005), a film that testified to a powerful sense of menace, with only limited confidence in human ability to defeat aliens. The biggest film hit of 1980 had been *The Empire Strikes Back*, followed by *E. T., the Extra-Terrestrial* in 1982, *Return of the Jedi* in 1983 and *Star Wars III: Revenge of the Sith* in 2005. Crop circles appeared to herald an alien invasion in *Signs* (2002). Far from the imaginative role of aliens becoming less common with human exploration, it became more pronounced. This role was used not only to offer adventure stories but also alternative narratives of meanings and origins. Universes without a deity offered a powerful challenge to the conventional belief in the divine ordering of life. As a result, religious groups criticized the *Harry Potter* stories and also the *Lord of the Rings* trilogy.

ENVIRONMENTAL PRESSURE

Greater knowledge of the environment served two different but related ends: utilization and protection of the environment, both of which were pushed with great energy in the USA. A greater understanding of the issues present in the protection of the environment indeed helped to clarify the damaging extent of utilization. Some of the latter was short-term in scope, and reversible, but much of it was long-term and cumulative, which made it difficult subsequently to effect radical improvement.

The 'development' of the western USA provides a good example of this process. The transformation of the 'waterscape' through irrigation played a central role in the new engineered landscape of dams and irrigation canals. This was designed to improve power generation and economic benefit, similar to those resulting elsewhere from deforestation, but, apparently, both superior and more scientific. But the predicted results of this development proved more difficult to ensure than had been anticipated. Furthermore, serious problems also arose. Long-term environmental consequences included raising soil salinity. In some areas, decades of flood irrigation led to this salinity, and thus to the need for more water to flush the land. High salinity poisoned plant roots. The irrigation run-off led to the build-up of alkalis in sink areas, and these affected wildlife. In particular, selenium, a toxic soil compound brought to the surface by agricultural practices, contributed to serious deformities in wildlife. There was a particularly serious crisis in the Sacramento-San Joaquin Delta ecosystem. Problems, in turn, brought renewed attempts at control. Throughout California, natural waterways (and native grasses) have been replaced or subordinated. The central role of human activity was partly displayed by dramatic dams, but by the end of the century the control of river flows by computer was a more insistent and symbolically appropriate symbol. The USA was not alone in this development. Water control was a major issue across much of the world, and the difficulties experienced in the USA can be matched, for example, in Australia.

The commodification and usage of natural resources was challenged in the USA, from the 1950s, by the proposition that the world

was a biosphere operating in an organic fashion and using natural feedback mechanisms to sustain life. The workings of this system were increasingly clarified by the spread of environmental concern and knowledge. Thus, it became possible to track, dramatize and debate the movement of air- or water-borne pollutants, for example air-borne sulphur dioxide from the Mid-West to eastern Canada and Appalachia. Books such as *Silent Spring* (1962) by the ecologist Rachel Carson highlighted the environmental threat posed by pesticides, especially DDT. The Sierra Club, a significant forum for environmental awareness, saw a major rise in membership, from 15,000 in 1960 to nearly 60,000 in 1967, 114,000 in 1970, 250,000 in 1981, nearly 500,000 in 1991 and 750,000 in 2005.

This was linked to a major shift in consciousness, as an environmental counter-culture critical of existing usage developed. For long, the human imprint had been seen as clear progress, and as fundamental to the development of the USA. Thus *The March of Civilization in Maps and Pictures* (1950) declared of the USA: 'its freedom-loving people have devoted their energies to developing the riches that Nature has so lavishly supplied'. A teleology of development was combined with a sense of a God-given right to transform the environment for human benefit.

From the 1960s this interpretation was seriously challenged. Environmental concern began as part of the counter-culture, and, to a certain extent, remained there, as with the annual Earth Days held from 1970. Discussion of the environment, however, played a far more prominent role in public awareness than had been the case in the 1950s, and the mainstream political process responded. Much greater sensitivity was shown to environmental issues than in the Soviet Union or China. Legislation included the Wilderness Act of 1964, the National Environmental Policy Act of 1969, the Clean Air Act of 1970, the Clean Water Act of 1972, and Endangered Species Protection Acts in 1966 and 1973.

There was also, as a central theme of environmentalism, an attack on aspects of big business. Indeed, environmentalism permitted a revival of aspects of the Progressivist movement of the early twentieth century. There were attacks on particular companies, not least Ralph Nader's sustained critique of General Motors, the leading car maker, and also an assault in the arts on business, although business was one of the biggest

sponsors of the arts. In David Mamet's play *The Water Engine: An American Fable* (1977), big business is presented as corrupt and dangerous as it seeks to suppress an engine that runs on water. The engine itself is destroyed. At the cinema, *The China Syndrome* (1979) was a thriller about safety cover-ups at a fictional nuclear plant, which was made apparently prescient when the Three Mile Island reactor went into a meltdown a week after the film was released, while *Silkwood* (1983) focused on the disappearance in 1974 of a union organizer who exposed serious safety breaches at the nuclear power plant where she worked.

It proved difficult, however, to make environmentalism a large-scale populist aspect of mainstream politics, in part because such concern was generally presented as opposed to growth, a crucial goal in public discussion, as well as a restriction on individual freedom. Green political activism remained very weak in comparison, for example, with Germany. There were also pronounced regional and local variations within the USA, with environmental concerns proving strongest in areas that were politically liberal and whose economy was focused on the service sector, although the 'What would Jesus drive?' campaign added an interesting strain of religious environmentalism, which testified to the strength of religion in American culture. Regional political cultures also played a role, environmentalism being seen as a goal in the North-East and as a distraction, if not effete self-indulgence, by many in the South and the West, and in Mid-Western states, such as Indiana, that shared much of their ethos.

It is very easy to attribute the pressure on the environment to the marked rise in America's population, and certainly that was of great importance. A clear implication is that this is all the fault of 'ordinary people', having lots of children, driving cars and consuming goods, and that the inevitable consequence of the rise in population is environmental degradation. But it is also necessary to look at how resources are used. Here, the pattern remained very skewed. The more affluent used their affluence in order to consume a greatly disproportionate share of American (and global) resources, and their affluence was, in part, measured by this consumption.

Pressure on the environment was far greater than ever before, particularly in Alaska and the West. This was not simply due to larger

human numbers and directly related pressure on resources, such as water. Technology also helped in the exploitation of the environment. The flexibility of motor transport and roads, over railways, increased the tempo of human action. Furthermore, thanks to greater technological capability, the range and impact of extractive processes, such as mining, increased, as with oil extraction in Alaska. It is possible that global warming will accentuate this process, as minerals and oil currently under the Arctic ice become easier to exploit. Politics also play a role. In November 2005 the Republican-dominated Senate voted to open the Arctic National Wildlife Refuge to oil drilling.

HUMANS AND ANIMALS

The changes in habitats stemming from human development also affected other species. It has been easier to chart the process for larger animals, especially big mammals, than, say, for amphibians, let alone insects, and it is likely that the impact on smaller animals has been considerably underrated. The challenge also engaged imaginative attention. In the science fiction tv series *Tremors* (2003), El Blanco, a large underground worm-like creature in Nevada, is dangerously irritated by a genetically modified creature produced in an underground government biotechnology laboratory. The theme of malign human intervention also plays a major role in the *Jurassic Park* film trilogy (1993–2001).

The great expansion in population, and in man-made environments and products, ensured that animals that benefited from contact with humans increased in numbers. In part, this was a matter of animals that Americans wished to have around, such as farm animals and pets. Meat-eating was an important aspect of American affluence and popular culture, celebrated in the cult of the barbecue and the popularity of the beefburger. Some meat was imported, but most came from American animals. In turn, however, the meat industry produced serious pollution when animals were concentrated in large numbers, as in the Arkansas poultry industry. Chicken rubbish contains high levels of phosphorus, which cause problems in water supplies.

In agriculture, the emphasis on costs and profits, not least the yield of meat per acre, led to a relative move away from beef cattle (of which the USA, nevertheless, remained the world's largest producer), which were generally fed on pasture and which were part of the American image. Instead, there was a greater emphasis on animals that could be fed more intensively from feedlots throughout the year, especially pigs and chickens. In the resulting 'factory farming', land ceased to be the main factor of production in agriculture, since animals were kept, in high-density, in buildings throughout the year. This qualified ruralist conception, about the relationship between agriculture and land, led to concern about food safety, which was linked to that over the impact on humans of the consumption of 'fast food', and greatly increased the problems posed by animal waste. The dumping of waste products contaminated local rivers and groundwater. Americans, however, largely sought to ignore the conditions in which farm animals were kept, and very few challenged ruralist conceptions. The condition of the food industry, nevertheless, remains a matter of concern. Although the feeding of bone meal to cattle was banned in 1997, blood and gelatine were still part of their diet. In 1996 a survey indicated that one in five dairy herds had MAP, a bacterium that causes a wasting disease in cattle, Johne's Disease, that may itself be a cause of Crohn's Disease in humans, a disease that has become more common. Farmers themselves were under great pressure from meat-packers, such as Tyson Foods, which, in 2004, was found guilty of manipulating cattle prices.

In contrast to ignorance of the condition of farm animals, the demand for pets spawned a major industry that recorded many of the processes more generally characteristic of American society, including consumerism and the impact of fashion and social changes. The pet industry, for example, reflected the growing importance of developing and satisfying the sensibilities of children, a crucial element in changing consumerism. The trend from dogs to cats reflected the growing percentage of Americans living in small dwellings, as well as the decreased ability or willingness to take dogs for walks, which, in part, was a consequence of other leisure options, such as the cult of the gym, as well as pressure on leisure time. The greater independent role of women as consumers also played a part in pet choices. Pets also played

a major role on film, both in family comedies and cartoons. They were an amusing 'underclass', essentially well treated, positive and offering no implicit criticism of human hierarchies and priorities. Pets proved a more conducive topic than poverty for a film industry that was far from strong on (social) realism.

The treatment of animals reflected the myriad tensions of American society. For example, in 1999 Macaw Native Americans decided that they would hunt the grey whale in the Pacific in order to train the younger members to appreciate traditional hunting methods. This caused enormous outcry, so the Coast Guard and the Washington National Guard had to protect the Macaw while they were out practising and then hunting. Critics pointed out that the Macaw hunted the whales with the far from traditional .50 calibre rifle. Macaw culture was attacked with calls for the acceptance of American norms. Pilgrim Congregational, a very liberal United Church of Christ church in Seattle, that was usually quite supportive of indigenous culture, argued that the whales' rights took precedence over those of the Macaw.

The human impact on the environment also had unintended consequences for animals. Global warming affected their habitats and breeding patterns, greatly in some cases, and may have been beneficial for some species. Birds and fish appeared in more northerly latitudes, the robin, for example, in Alaska. The warmer climate was believed responsible for an increase in the inroads of spruce bark beetles in Alaska, while grey whales, walruses and eider ducks moved into the northern Bering Sea as it warmed up. Other animals, however, suffered. The diminution of the ice in the Arctic made it harder for polar bears to hunt and led to them swimming further in search of food, some drowning. At a more local level, wastewater emissions from power stations and factories raised water temperatures, and led to greater animal and plant activity nearby.

Animals were also affected by human activity that removed predators. For example, the decline in the number of mountain lions helped the wild horse or mustang to multiply, and they became a serious problem in the fragile environment of the West, particularly in Nevada, as well as competing with cattle for the limited food available. In the Everglades in Florida, the disruption of the hydrological system by

drainage led to the invasion of species, such as pythons and tropical fish, as well as a benefit for fish able to live off rotting vegetation. In the very different urban and suburban environment, rats, cockroaches and other wildlife benefited greatly from the growth in the volume of rubbish. In New York in 2005 a marked rise in complaints about rats and mice (to nearly 32,000 for the year March 2004–March 2005) became an issue in the mayoral election. Also in New York that year there was a marked rise in bedbug infestation. The growth in rubbish owed much to the greater unwillingness to reuse material, and was a product of rising affluence and of the transformation of material culture, including major changes in packaging. Animals such as squirrels, foxes, deer and bears altered their activity patterns in order to exploit sites of rubbish accumulation and disposal, for example, near fast-food restaurants.

Indeed, all these animals became increasingly urban. This was partly caused by the abandonment by farmers of economically marginal farmland, which lessened the buffer between towns and woodland. This was particularly seen in the North-East, where farms were smaller and, therefore, less economic than those in the Mid-West and West. The advance of suburban areas into woodland was also an important factor. In suburban Boston there is now a problem with coyotes, while raccoons and skunks are also very common. The spread of suburbia, moreover, was blamed for the widespread fires that broke out in California in 1993, 2003 and 2005, since houses were built too close to brush that was prone to fires. This tendency was also blamed on the drier climate, because the brush was very dry, although, as a reminder of the complexity of causation, such dryness was particularly serious if it followed heavy rainfall that encouraged vegetation growth. There were also serious fires in Colorado in 2001. Expanding settlement and low-density living meant that humans and animals shared habitats. In Louisiana and Florida some people moved into areas where the waterways were inhabited by alligators, Miami, for example, spreading into the Everglades. In a different sphere, the widespread increase in sewage levels ensured that bacteria found in human waste, such as *faecal coliform*, thrived.

The period certainly witnessed an accelerating race between humans and animals for profit from what Americans saw as their habitat, but

which was also, of course, that of animals. Notions of God's creation and God-given rights were not generally extended to the latter. The successful film *Jaws* (1975) was the most vivid display of competition, and spawned sequels.

In part, Americans used animals of their own in the contest, and their animals were also victims. I can recall staying in Baton Rouge in an area in which alligators were eating domestic pets. More generally, hunting dogs helped shooters, while cats were still employed against rats and mice. On the whole, however, the remedy to animal competition was chemical, in both houses and fields. This increased dramatically the volume of chemicals in the USA, especially those not 'contained' in manufacturing plant. The rhetoric of exterminating natural enemies, such as cockroaches, became insistent, and was supported by the filmic depiction of sinister parasites and insects, as in *The Shivers* (1975) and the remake of *The Fly* (1986). The resulting 'war' on insects and other enemies, however, had unwanted side effects. In some cases, as in the battle against rats, there were signs of increasingly limited success, since the animals began to develop immunity to chemicals. There were other problems with chemical warfare. DDT was used, with good results, against mosquitoes in the long battle with malaria, for example in Florida, but it also affected the animal and human population. Malaria itself became more resistant to drugs.

AGRICULTURE

The chemical offensive was also employed in agriculture. The monoculture that came from an emphasis on a few high-yield crop strains lessened bio-diversity and also provided a food source for particular pests. More generally, as a result of agricultural practices, the organic matter in soil was widely degraded, while cultivated land left without a protective cover of vegetation suffered from the large-scale erosion of soil by wind and water. This, in turn, encouraged the application of unprecedented levels of fertilizer. Fertilizers, herbicides and pesticides, however, increasingly affected the crops that were consumed. There was also a major impact on water resources as fertilizers ran off into

rivers with groundwater, or were transferred into the water system through leaching into the soil (affecting well water), or evaporation and then distilling out in colder air. Decreases in the water supply accentuated concentrations of pollutants. The widespread application of nitrogenous fertilizers also had an effect on global warming as nitrogen evaporated from soils.

Pesticides had a more direct impact on the health of the agricultural workforce. This was one that was accentuated by technology in the shape of the aerial 'top-dressing' of fertilizers from crop-dusting aircraft. This system also spread fertilizers widely in areas where they were less welcome. Methyl bromide, a gas employed against parasites across the USA, in particular in the cultivation of peppers, strawberries, tomatoes and Christmas trees, causes neuromuscular and cognitive problems, and, although the government agreed to phase out its use by 2005 in order to help protect the ozone layer, it proved willing to obtain treaty exemptions in order to permit continued use.

The application of fertilizers helped to drive the increase in yields. Corn yields in the Corn Belt rose from 50 bushels an acre in 1950 to 125 bushels in 1980. Higher production, however, meant downward pressure on prices, leading to dependence on exports, and a financial crisis for many farmers in the 1980s, as falling revenues exacerbated the burdens of meeting heavy costs, including the debt arising from more expensive inputs such as machinery and fertilizers. This led to heavy drinking and a high rate of suicides among farmers. By 1987 Iowa suicides had reached the highest total since the 1930s. The crisis spread to hit the economies of local towns, and to lead to tension between lenders and borrowers. In 1985 there were attempts to prevent foreclosure farm sales in Minnesota.

Throughout the world a focus on particular crop strains lessened bio-diversity and therefore, however convenient the parallel might seem, cannot serve as an indicator of American social trends. This development does, nevertheless, serve to emphasize the role of standardization and scale in mass-consumer-driven economies, such as the USA. Like the standardization in manufactured goods, supermarket chains insisted on certain types of produce and emphasized certain physical characteristics as supposedly betokening wholesome produce.

What they advertised and displayed shaped as well as reflected public assumptions. This was seen in fruit and vegetables, as well as in meat, fish and wine (the USA became the world's fourth biggest wine producer). Technological advances interacted with the drive for standardization. Tomatoes, for example, became more ovoid in shape as a consequence of the emphasis on harvesting by machines rather than human pickers, because they were easier to pick. The rise in the sale of pre-cut and packaged vegetables and fruits reached \$12.5 billion in 2004, nearly four times the figure of a decade earlier.

Politics also played a crucial role in American agriculture. The lobbying power of agriculture protected it from some of the environmental constraints that were increasingly affecting industry. Politics also helped to ensure subsidies, for example for growing alfalfa, cotton (a subsidy ruled illegal by the World Trade Organization in 2004) and rice, as well as discriminatory moves against imports, for example of Canadian lumber from 2002, moves that were a breach of the North American Free-Trade Agreement. In 2005 the Senate extended agricultural subsidies. The overall impact of politics was to provide a level of protectionism that accentuated environmental pressure (by keeping uneconomic crops in cultivation) and distorted free trade. This hit poorer countries, such as cotton producers in West Africa, for example Mali, and also affected the prices paid by American consumers.

FISHING

Consumer pressure and technological enhancement also affected fishing, but politics had less influence, reflecting the greater political clout of farmers. Waters off the American coast were fished intensively by large 'factory ships', which consumed substantial quantities of energy and were equipped with sophisticated finding devices. These industrial fleets hit fish stocks. American fishermen were by no means alone in the process of depletion, but over-fishing affected both the North Atlantic and the Pacific. North Atlantic squid was fished out in the 1980s, and, in the Pacific, over-fishing hit the major catches, such as the anchoveta in the 1970s and the chub mackerel in the 1980s. Red snap-

per stocks in the Gulf of Mexico were also hit. Legislative action sought to redress the situation, and reflected the extent to which capitalism could be regulated. The Magnuson-Stevens Fishery Conservation and Management Act (1976) required fishery managers to specify a time frame that was as short as possible in which to end over-fishing and to rebuild over-fished stocks. Pressure on stocks, however, ensured that the situation could not be defined simply in terms of benign management. Instead, there was tension, indeed conflict, between communities of fishermen. As was frequently the case in American society, such conflicts could be accentuated by ethnic differences, particularly on the Gulf of Mexico, where Vietnamese immigrants became important, especially in the shrimp industry.

An effort was also made to develop fish farming, which became more important in the last quarter of the century, especially for catfish. Although fish farming fitted the tendency to make the most intensive use possible of all land and water that could be utilized, it consumed resources, not least fishmeal, and led to a serious accumulation of waste and toxins.

CLIMATE CHANGE

American agriculture and fishing were affected by climate change, which was possibly the most significant development of the period. The trend in temperatures was upward, with important rises from 1980. When periodic falls in temperature occurred after 1980, for example in 1999, in every case they were to a higher level than the temperature in 1980. Furthermore, global warming was also an accelerating process. From 1975 until the end of the century, the USA's surface temperature rose by about half a degree Celsius, reaching a figure apparently higher than in any period of human habitation.

Environmental change became a major international issue from the 1990s. It was also revived as an important topic in American public discussion, but this fed into America's 'culture wars'. Conservatives and some business interests questioned the evidence for temperature change. James Inhofe, Chairman of the Senate Environment Committee, and

Senator for Oklahoma, a state with a large oil industry, described global warming as a 'hoax'. Supporters of George W. Bush queried the extent of warming and the degree of human responsibility, and therefore the value of trying to control human actions by, for example, limiting emissions of 'greenhouse gases', a course urged by environmentalists. Bush rejected this linkage, and the Republicans in the Senate blocked the Climate Stewardship Bill, which would have led to federal caps on emissions. As in the past, environmental policy was shaped by political partisanship.

In 2005, however, the National Academy of Sciences not only declared that there was strong evidence of such global warming, but also that 'it is likely that most of the warming in recent decades can be attributed to human activities'. Indeed, American scientists have provided crucial evidence both of global warming, a trend charted by the Institution of Oceanography in San Diego, and also of the impact of the burning of fossil fuels. Although their research has led to pressure on their funding from the Bush administration, there is more freedom to debate the issue than there would be in China. An analysis in 2005 by NASA's Goddard Institute for Space Studies of readings from 7,200 weather stations indicates that global temperatures have risen by 1.36° Fahrenheit (0.75 °Celsius) above the average between 1950 and 1980.

The devastating Hurricane Katrina in 2005 accentuated the issue, because some commentators linked the severity of the storm to the high temperature of the water in the Gulf of Mexico, at 80 °F. This was a controversial point, but an important issue nevertheless. Politicians and journalists, however, preferred to focus on the issue of governmental failures in preparation and response. The most acute failing, but one again that is far more uncomfortable than the issue of crisis management, is in the general issue of energy use, and official forecasts are grim, both for carbon emissions and for electricity consumption.

The extent to which rising emissions will lead to further warming, possibly an increase by another 1°F by 2030 and a total of 2–4 °F by 2100, as suggested in 2005 by David Rind of the Goddard Institute, is controversial. It is also unclear how far the process has become self-sustaining. For example, the shrinkage of the Arctic ice as a consequence of global warming will ensure that the Arctic will warm up more

quickly, because open water absorbs more solar heat than ice, which, instead, reflects it. In 2005 NASA scientists, in a joint project with the University of Colorado, estimated that the Arctic ice cap now covers 500,000 fewer square miles than the average cover between 1979 and 2000. This might not mean much if you sit in the warmth of the Florida sun, but the consequence of such melting will be higher sea levels that threaten to drown parts of coastal Florida. By the early 2000s world sea levels were rising at a rate of 2 mm (0.08 inches) a year. To those reading this in Wyoming, it means higher taxes to pay for federal disaster relief.

As a result of warming, climate zones within the USA moved both geographically and in terms of the terrain: more northerly and higher regions both became warmer. This was significant for desertification in the West, while, across the US, greater heat had important consequences for the availability of freshwater on land. This increased pressure for irrigation, which contributed to the growing water crisis in the West, although water availability was not only an issue there. Rising water consumption was a product of high per capita usage (232 gallons per day in California in 2000) and greater numbers. Increased extraction of water from rivers ensured that river levels, for example of the Colorado and the Rio Grande, dropped, and the volume of water reaching the sea declined. Extraction from rivers also led to disputes with neighbouring countries, as well as between states. That over the Colorado, from which California took water through the Colorado River Aqueduct and the All-American Canal, led, after much bitterness, to an agreement between seven states and the Department of the Interior in 2003. Rising consumption also led to the depletion of natural aquifers and to the movement of salt to the surface, which greatly affected soil quality. Water levels were also hit by drought, particularly in the early 2000s. This ensured on the Mississippi that, in order to avoid scraping the bottom, barges had to be lighter, which affected the efficiency of barge traffic. Further down the river, the impact of Hurricane Katrina on New Orleans in 2005 owed much to the funnelling effect of the Mississippi River Gulf Outlet, which had been constructed to give ships a shorter route to the Gulf of Mexico.

The water crisis has been largely addressed by supply side solutions, particularly dam construction and related water transfer schemes. Los

Angeles, a megalopolis with 3.8 million residents in 2004, built in the middle of a desert, symbolized the determination to locate human activities as desired and to move resources accordingly. The role of water in local political culture and the struggles to control its supply had an echo in the arts, most powerfully with Roman Polanski's film *Chinatown* (1974).

Dams were the symbols of this determination to control, but they posed problems, not least cost, disruption to settlements in the areas flooded and serious changes to fluvial systems, particularly the trapping of silt, which, indeed, lessened their effectiveness. By the end of the twentieth century there was far more of an emphasis than hitherto on demand-side policies, in the shape of more effective water use, for example low-flush toilets, and on more appropriate costing. This led, in the early 2000s, to incentives in parts of the West to abandon garden plants requiring irrigation. Particular tension focused on golf courses, which required large quantities of water, and its lavish use was a response to assumptions that it would always be readily available, even in desert environments. Golf courses also reflected the extent to which environmental ownership and pressure were products of social structures.

Despite a degree of micro-management, the demands on the environment and, in particular, on water resources, from serious and sustained population growth were not firmly controlled, being left to local guidelines, rather than national planning. The fastest-growing states, Nevada, Arizona, Florida, Texas and Utah, were in water-shortage areas. This was part of a major move to the South and West that saw a major reordering in the urban hierarchy, with the metropolitan areas focused on Los Angeles, Dallas, Houston, Atlanta, San Diego, San Antonio, Phoenix and Las Vegas all becoming more important. In contrast, areas where water availability was less of a problem, for example most of the North-East, showed only modest population growth. In 2003 Phoenix displaced Philadelphia as the fifth most populous city in the country. Agriculture, an important sector of water demand, benefited greatly from subsidized pricing. This was particularly so in California, where close to 80 per cent of the water was used for farming, and this pricing was an aspect of the totemic character of agriculture in American public life, as well as of its strong grip on the politics of 'pork' (special interests).

As yet, the impact of a rising sea level has not been felt greatly in the USA, but, as the warming oceans expand when polar ice melts, it will become more of a feature. Shrinking glaciers, for example in Kenai Fjords National Park in Alaska, offer a clear warning. The melting of the snows in the Rockies also poses a serious problem, as water availability from snow is more consistent than if it falls as rain. Much of the latter becomes run-off that cannot be used so readily in the water system.

POLLUTION

Other changes that can be measured include carbon-dioxide emissions and acid deposition, the former the result of burning forests or fossil fuels, the latter a consequence of sulphur and nitrogen production from industrial processes. In 2005 the International Energy Agency warned that, unless energy consumption was limited, emissions of carbon dioxide would be 52 per cent higher by 2030. Carbon dioxide is the greenhouse gas, while acid rain damages woodland and hits both rivers and lakes. Pollution spread widely. When caused by 'high-stack emissions', it had the capacity to affect distant environments. It is very striking to stand on the Blue Ridge Parkway near Asheville and see air polluted by Mid-Western manufacturing plants being blown east. Exporting jobs, to Mexico under the North American Free-Trade Agreement (1994), or to China via the trade deficit, simply moved the pollution elsewhere.

The assault from pollution was also very varied and insistent. Lead emissions from traffic seriously affected air quality. This was particularly so in the cities, accentuating the appeal of suburban life, but suburban commuters then further damaged urban air quality, both in the suburbs and downtowns. The consumer society also produced greater and greater quantities of rubbish, much of it non-biodegradable, and some of it toxic. The nuclear industry, which contained 103 plants in 2005, posed particular problems.

Environmental damage as a consequence of accidents was also important. This was prominent at sea with the shipwreck of oil tankers, such as the *Exxon Valdez* off Alaska in 1989, but was more common on

land, not least with leaks from oil pipelines. This damage led to particular sensitivity about the development of the Alaskan oil industry. In March 2006 a ruptured pipeline from which 950,000 litres of oil had spilt was discovered on Alaska's northern coast. The environmental problems caused by oil were also readily apparent in the toxic waters left in Hurricane Katrina's aftermath in 2005. The Three Mile Island accident in 1979 hit the development of the nuclear power industry, and no new nuclear power plants were commissioned after that. Indeed, more than 100 reactor orders were cancelled.

Noise and light pollution have also become more serious and widespread. The latter ensured that the view of the sky at night was increasingly affected, particularly as American society had the affluence to use large amounts of lighting, and the freedom to do so with scant regulation. Light pollution might seem an affliction of recent decades, but it was readily apparent from the sky, and brought home by nighttime photographs of the USA over a long period of time. More direct visual impact arose from industrial and mining activity. This was true both of economic activity and of its consequences. A particularly brutal example was provided by the West Virginia coal industry, which stripped mountains not only of their natural cover but also of their tops, helping to cause major problems with erosion, run-off and clogged waterways.

ENERGY SUPPLIES

There was particular pressure on energy supplies. Rising energy needs reflected the enormous growth in both per capita and aggregate energy consumption, in response to shifts in economic activity, social processes and living arrangements, but also the extent to which taxes on oil (petrol, gasoline) were low compared to those in Europe. The range of energy uses also increased. Oil-based additives became important in agriculture, while the spread of agricultural machinery increased demand for oil. In the 1990s the greater use of computers and the Internet pushed up demands for electricity. Despite a major rise in Chinese oil consumption from 2000, the USA consumed a quarter of world oil output in 2004, and its consumption per capita was

considerably higher than in more densely populated Europe, let alone China. This was not only a matter of American prosperity, but also a product of the lack of investment in fuel economy, including public transport. In turn, this was a product of consumer preferences, corporate responses and a lack of serious government backing. The impact on the environment was grave. The highest per capita emissions of greenhouse gases were in the USA, in large part caused by the strength of the car culture there. Carbon dioxide was the most important greenhouse gas, but other emissions were also damaging. A combination of cars and the petrochemical industry led to the Houston conurbation sending skywards 200,000 tons of nitrogen oxide annually by the late 1990s. Petrochemical plants also bathed communities, such as Beaumont in Texas, the site of an Exxon Mobile refinery, in a perpetual smell. It is very unpleasant, even if it is the smell of jobs. A second visit did not improve the smell.

Energy use was linked to issues of finance and national security. Extensive coal reserves eased the need for imports – and coal fuels more than half of America's electricity needs. However, oil imports – close to 2 per cent of GDP in 2005 – were seen to put pressure on the balance of payments, and also to lead to a dangerous dependence on the politics of the Middle East and the stability of particular regimes, such as those of the Shah in Iran in the 1970s and the Saud dynasty in Saudi Arabia. In 2003 Saudi Arabia held 25 per cent of the world's oil reserves, and Iraq another 10 per cent, with the Middle Eastern OPEC states having two-thirds of the world's reserves. Whatever the future development of American supplies, particularly in Alaska, the Middle East will dominate future supply. Although the role of oil in the American decision to attack Iraq in 2003 was exaggerated, oil certainly played a major role in the geopolitics of American strategy. Indeed, this was an aspect of the cost that oil dependence forced on the USA, and thus the burden placed on its economy and consumers.

Oil imports rose sharply in the 1970s and then, having fallen in the early 1980s, again thereafter. These imports are projected to go on rising. In 2004 the US imported 58 per cent of the oil it consumed, compared to 34 per cent in 1973. The Energy Information Administration predicts this rising to 68 per cent by 2025, rising imports

essentially meeting rising demand, although the shift from manufacturing to information and service industries has helped to limit the rise by reducing the economy's need for oil. Indeed, the consumption of energy per dollar of GDP fell by nearly a half from 1973 to 2002. Pressure on energy supplies, nevertheless, led to a major rise in oil and natural gas prices from November 2001. This hit American consumers particularly hard because of the relatively low rate of petrol taxation. In 1993 the federal tax was set at 18.4 cents per gallon. It has not been adjusted for inflation since. As a result of concern about oil costs, demand rose greatly for the new hybrid technology of petrol-electric cars, although that remained only a small percentage of the market.

Energy problems also led to a revival in interest in nuclear power on the part of the administration of George W. Bush, himself a supporter of subsidies for new plants. Concern about fossil fuels and carbon emissions led some environmentalists to support this goal. Given the very limited prospect of any reduction in energy use, environmentalists had to confront the problems posed by the various options for increased provision. For example, in Massachusetts in 2005 there was a debate over whether to place 130 large windmill turbines off Nantucket Island. It was claimed that there was enough potential energy in the winds off the east coast to replace much of the region's power-plant capacity. Environmentalists, however, joined by those who want to preserve the scenic beauty of Nantucket Sound, mounted a major counter-offensive.

The availability of passive safety features, rather than those dependent on operators, suggests that any new nuclear reactors will be safer than hitherto. Vulnerability to terrorist attack, however, is an issue. Energy had already precipitated a domestic political crisis in California in 2003, when it helped to cause the overthrow of Gray Davis, the Governor of California, whose popularity had suffered as a result of repeated electricity supply blackouts in 2001, and his subsequent attempts to deal with the crisis. Although the allocation and pricing of the available power were crucial to the crisis in 2001, the underlying problem was caused by a lack of capacity, because of the unwillingness to build unpopular power plants. In 2001 Vice President Cheney, who had major interests in the construction industry, had warned about the danger of a lack of energy threatening the economy, standard of living

and national security, and argued the need for between 1,300 and 1,900 power plants. Government devoted far less attention to limiting demand or financing alternative technologies, despite the strategic value to be gained by lessening the need for oil imports. Bioethanol, indeed, can be produced in the USA, as could hydrogen, the basis of fuel-cell technology. At present, the use of corn-based ethanol as a fuel is costly, and only possible thanks to subsidies, but that may change if biotechnology makes it easier to produce. In his State of the Union address in 2006, George W. Bush proposed to finance research in this field, at the same time that he declared that 'America is addicted to oil', something he had singularly failed to tackle, not least in the Energy Act of 2005.

HOUSING

The car moulded the urban environment, facilitating the spread of suburbs over great distances. This ensured that the suburbs pressed on the natural environment, and also provided many problems for the provision of public services. In greatly expanding urban areas, such as Los Angeles, Houston and Atlanta, far-flung water and sewage services had to be established as the suburbs spread, creating new edge-cities. The combination of inexpensive new-build construction methods and the ready availability of mortgage support helped to make suburban expansion profitable and possible, and, throughout the period, most population growth in metropolitan areas has been suburban. Although the skyscrapers of downtowns reflected urban land values for offices, frequent talk of an urban renaissance as downtowns, or really parts of downtowns, became more fashionable as residential districts, ignored the extent to which population growth was faster in metropolitan peripheries than in their cores. This had political consequences. Whereas, in 1952, New York City had almost half the state's voters, by 2005 it had less than a third. The cultural consequences of suburban expansion included an important measure of homogenization, seen, for example, in the use of national patterns of urban layouts and housing types, as well as in shopping and leisure facilities, most of which were provided by national chains. This homogenization was an important aspect of

the standardization that was seen throughout the economy and the consumer culture it fostered. Across the country, for example, light switches were the same, which was a tremendous boom to the economies of scale, as well as encouraging uniformity in design.

Private demand was the crucial element in housing, not public provision, and this demand responded to the major growth of GDP from the 1940s, and to the extent to which the lifestyle of the rich became that of the middle class. The kitchens and bathrooms of standard houses reflected this shift. The average house-purchaser came closer to realizing the standard dream of a detached house in a low-density area. This was crucial to the suburbanization of society, a classic case of 'pull', in the shape of aspirations for a particular lifestyle, and 'push', in the shape of fear of the city. This was a fear brilliantly captured in Tom Wolfe's novel *The Bonfire of the Vanities* (1987), and in *Batman*, the most successful film of 1989, which offered a very dark depiction of the city. The city was also seen as sinister and brutal in a tranche of films including *Sin City* (2005), a violent film based on Frank Miller's writing.

By August 2005 the annual rate of home sales was 7.29 million units (in October it fell to 7.1 million), while the median home price was \$220,000, an annual increase of 15.8 per cent, the biggest rise on record in real terms (by October the annual increase was 16.6 per cent). In October the median price of new homes was \$231,300, although it subsequently fell. Throughout 2000 the figure had been below \$150,000, while it had been \$22,600 in September 1970 and \$68,300 in September 1980. Furthermore, the average size of houses continued to grow. By 2004 it was 2,349 square feet, an increase of 12 per cent in a decade. Tax cuts thus fed through into larger houses, while financial devices such as option adjustable-rate mortgages eased borrowing. Rising house prices encourage activity, and thus employment, in construction, increase net worth and make it easier to borrow. Borrowing against home equity as a share of disposable personal income indeed rose from 1 per cent in 1994 to 3 per cent in 2000 and 6.9 per cent in 2004; and in 2004 this added \$600 billion to consumers' spending power. This was more than double the value of President Bush's tax cuts and put the latter in perspective. Rising home prices also make housing more

expensive, enforce saving for, and in, property, and thus challenge expenditure in other spheres, such as leisure. In 2005 residential investment rose to 6 per cent of GDP, and property loans accounted for just over half of banks' total lending. An unwillingness to accept lower expenditure in other spheres led to a greater determination to borrow in order to fund house purchases. In 2005 households' mortgage debt rose to \$1.8 trillion, an increase of close to a third in two years.

The major rise in house prices at a time of low inflation helped to take the combined revenue of the top ten house builders to about \$73 billion in 2004, underlined social differentiation and also helped to make house purchase even more desirable. It was easiest for the upwardly mobile and youngish, and their ethos became particularly important in suburban areas, while the ability of the young to establish themselves helped to ensure the rise of the birth rate. The situation in Italy was the exact opposite: unable to establish themselves, children stayed in the parental home and the birth rate fell. An important aspect of social differentiation in the USA also arose from the increased percentage of properties that were second (or more) homes, whether for vacations or for investment. This was a very concrete manifestation of differences in wealth and opportunity. Whereas second homes were responsible for 7 per cent of new mortgages in 2000, the percentage for 2004 was 14, an unprecedented level.

TRANSPORT

The car was increasingly the dynamic hub at the intersection of a number of pressures and trends. Car use rose greatly and the car had a major impact on lifestyles, design, architecture and the economy. The car was very important in the demand for oil. By 2000 there were 486 cars per 1,000 people; by July 2005 there was a total number of about 225 million vehicles, which will possibly increase by about a half by 2025; and in February 2006 the seasonally adjusted annual rate of sales was 16.6 million. The state of car manufacturers such as General Motors and Ford was seen as crucial to the economy and to the trade balance, but a major part of the market was met by imports or by

manufacturing within the USA by foreign companies. Japanese competition proved particularly effective. The spatial dimension of production was linked to socio-political considerations. Japanese and European plants in the South were mostly non-union and easier to manage than American-owned unionized plants in the North, particularly those of General Motors.

Alongside housing, the imprint of the car on social life was insistent, affecting a wide range of activities, including family relationships, courtship rituals and shopping. Greater personal mobility for most Americans, but by no means all, enabled, and was a necessary consequence of, lower-density housing and a declining role for public transport. This was linked to changes in employment patterns and urban structures, not least the shift from manufacturing to the service sector. Furthermore, in place of factories, or mines, that had large labour forces, most modern American industrial concerns are capital-intensive and employ less labour. They are located away from the central areas of cities, on flat and relatively open sites with good road links. There was a comparable shift in docks, away from city anchorages, for example in New York and San Francisco, to large, new, 'greenfield' container ports that employed far less labour – and were far from the trade-union problems of established docks. In 2000 approximately seven million trucks (lorries) in the country served docks, factories and the network of wholesale and retail distribution. Greenfield construction was also true of business, science and shopping parks, and, by 2004 suburbia accounted for about 90 per cent of new office building. It was far easier to deploy new technology, particularly the multiple electric networks required by computers, in new buildings. Related changes in location were also of great importance in such areas as education, health and leisure. Mega-churches were built in the suburbs, the prominent Southern Baptist Adrian Rogers moving Bellevue Baptist Church to a 6.5-acre site in the suburbs of Memphis in 1989. Roads provided not only access, but also the flexibility lacking in rapid-transit systems, and this made low-density development possible and profitable. Cars organized time as well as space, the journey-time by car becoming a prime unit of time and a way to organize people's lives.

Yet, as roads led to greater car use, so there was a need for more roads. In turn, they defined links and created physical barriers, producing a clear shaping of local environments that was linked to ethnic and social divisions, both real and psychological. This was the background to daily life, as experienced by many urban Americans, and also to the fictional world, as in the film *Crash* (2005).

As a result of the focus on the car, access for pedestrians declined markedly, and cycling was not generally an option, which further encouraged car use. An ironic aspect of this was that shopping malls themselves became important sites of exercise as well as challenges to the unfit. For some, getting to the mall from the parked car was a problem, as was moving within the mall, while others saw malls as a good place for indoor exercise, safely policed by the mall's security staff. Indeed, the Woodfield Mall in the Chicago suburb of Schaumburg advertised itself as a suitable location for walking exercise.

Cars also consumed an enormous amount of space. By the 2000s 'McMansions' had triple garages, while town centres and large parking garages and shopping malls were surrounded by acres of parking spaces. Parking attracted entrepreneurial activity (as well as corruption), and also played a major role in planning and in development battles. The scale of cars meanwhile was increased by the popularity of suvs (Sports Utility Vehicles), which are allowed by federal regulations to be less fuel efficient than other cars (as well as being far more dangerous to pedestrians). Their growing popularity in the 1990s ensured that average fuel economy for cars did not show the improvement it had displayed in the 1970s and '80s, when, in part as a result of the Corporate Average Fuel Economy legislation, it rose from 14 miles per gallon in 1974 to 22 miles per gallon in 1986, leading to a fall in oil use, a marked decline in oil imports and the weakness of OPEC. Polls in 2005, however, indicated that most Americans would prefer not to trade-down to a smaller, but more fuel-efficient, car, despite the attempt to add religious appeal to conservationism with the 'What would Jesus drive?' campaign of the early 2000s. The family that in November 2005 won \$340 million in the Powerball Lottery celebrated by buying their dream car, a Humvee. An amendment to the Senate energy bill in 2005 that would have tightened vehicle fuel standards was rejected. This refusal

to strengthen demand-side action testified to the responsiveness of legislators to widespread popular reluctance about fuel efficiency, which, like downward social mobility or public transport, is generally seen as for others.

In addition, large amounts of money were spent on the road system, in response to both rising demand in saturated areas and, far more generally, to a sense of entitlement to easy road use. In the early 2000s billions were spent on the costliest single public-works project in American history, the 'Big Dig' in Boston, to reorganize the central road artery and add tunnels to Logan airport – all based on road transport. The same amount of money would have greatly improved the railroads in the North-East: the sheer size of the country argues against developed rail travel, but in the Boston–Washington corridor much could be done. Rail travel is important in commuting into many major cities, for example New York, Chicago and Washington, DC, where the Metro system was begun in 1976. It also helped to turn towns into dormitory suburbs: Fredericksburg, for example, became one for Washington. However, rail was of minor importance in commuting into Southern cities or, indeed, for travel to them: Phoenix's passenger train service ended in 1996. Rail also remained very significant for long-distance freight, not least thanks to the use of containers. These were an American innovation, introduced on shipping in 1956, and then spreading to rail and road. This increased the speed, and cut the cost, of freight movements. Containerization was linked to the needs for labour productivity and product predictability that played a major role in the American economy, and helped it to sustain a powerful competitive edge. Nevertheless, the crisis of rail at the national level was shown with the bankruptcy of major companies, such as the Penn Central Railroad in 1970.

Whereas public funding for road building was very great, and major projects were completed, there was no comparable support for the rail system. Instead, there were frequent attempts by Republicans to cut the funding of Amtrak. Public transport lacked instinctive support among conservatives. It was disliked as a 'socialized' system, of prime benefit to metropolitan areas, particularly in the North-East. Subliminally, there was also a dislike of the social and racial mixing it represented, one comparable to the response to public hospitals. This mixing is very

evident if local train services such as those of the New Jersey Transit Authority are taken. The limited provision for public transport helped to give the USA a distinctive character among developed societies. In *Who Framed Roger Rabbit?* (1988), corrupt government and the destruction of neighbourhoods, both in the interest of the car and against public transport, extended to the cartoon world. In practice, in 2005, 12 per cent of the voting-age population still did not have a driver's licence, but they lacked political influence. The emphasis on car culture was also shown with the average American only taking 28.4 bus trips in 2002 and with the six-year transport bill passed in 2005, which allocated \$286.4 billion for roads and bridges; 35 per cent more than the previous bill. Because of this expenditure, the federal Highway Trust Fund is due to move into a 'negative cash balance' in 2008. Legislators were judged a success if they could deliver benefits, such as roads and bridges, to their constituencies, a process known as 'pork', and seen in the 6,371 earmarks in the 2005 transport bill. This expenditure contributed to the crisis in public finances in the mid-2000s, as well as to anger about the unwillingness of legislators to trim 'pork'. There was also activity on roads at the state level. The ten-year plan for California unveiled by the Governor in January 2006 promised 1,200 miles of new highway lanes.

Bridges symbolized human control over the environment, rather as dams had done for a previous generation. Furthermore, whereas major dams were largely confined to areas remote from centres of population, and particularly to the West, bridges were frequently close to or, indeed, part of these centres. Their impact was both local and regional, the latter reflecting their role in changing transport patterns. The engineering feats were frequently impressive, as with the Hampton Roads bridge-tunnel between Hampton and Norfolk, Virginia, completed in 1978, and the cost similarly high. The eight-lane Arthur J. Ravenel Jr Bridge, opened at Charleston in 2005, was, at 3.5 miles, the longest cable-stayed span bridge in North America, and cost \$632 million. Its towers can be seen for more than 20 miles, and it is emblematic of the dominant role of bridges in low-country regions of the US. This bridge also reflects other tendencies of modern American bridge building. Although in response to pressure from environmental and cycling

groups it includes a bicycle and pedestrian walkway, the bridge is for road, not rail, travel. Secondly, it replaces existing facilities in a far more dramatic fashion, in this case the Grace Bridge of 1929 and the Pearman Bridge of 1964. Elsewhere, for example in the Virginia Necks, bridges have replaced ferries, this contributing to the spread of the car in poor coastal communities that were hitherto partially self-sufficient, if not cut off. This is linked to the decline of local dialects in some areas, such as near Gloucester, Virginia.

If private transport transformed local geographies, electricity consumption in the shape of air conditioning did the same for regions, by making year-round living in the hot, wet South-East and the desert-dry South-West comfortable throughout the year. In an instructive example of the altered states referred to in the title of this book, this made these areas attractive to those who did not have to live there year-round, both attracting internal migrants and encouraging those who already lived there not to leave for part of the year. Air conditioning reflected the extent to which the constraints of physical geography could be altered and, more generally, this is true of recent American history. Nevertheless, air conditioning represented a major energy demand.

ENVIRONMENTALISM AND POLITICS

Anxiety about environmental pressures led to demands, in both the USA and globally, for what was termed sustainable development. This, however, proved a nebulous concept. It was difficult to define and enforce, and was also contested by local communities anxious for jobs, companies keen to maximize revenues, and state and federal governments determined on development. The George W. Bush administrations proved particularly reluctant to heed domestic and international pressure about energy conservation. In 1997 concern about global warming had led to the Kyoto Protocol, under which the major industrialized states agreed to reduce, by the years 2008–12, their emissions of the greenhouse gases held responsible for global warming to an average of about 5 per cent below their level in 1990. However, it proved difficult to reach agreement on how to enforce the agreement, and in 2001 the

USA, whose emissions had risen greatly in the 1990s, rejected the Kyoto agreement. As such, it found itself opposed to Canada, the European Union and Japan. By 2003 US emissions were 13 per cent above those in 1990, although many other countries, including Canada (up more than 25 per cent), were even more off course.

There are prudential reasons for doubting aspects of the Kyoto process. In the discussions held at Gleneagles in 2005 by the leaders of the Group of Eight nations, President Bush argued that there were uncertainties about Kyoto's science and economics. More specifically, he claimed that the agreement entailed substantial costs, but only limited benefits, for the USA; that proposals to deal with greenhouse-gas emissions excluding developing countries, especially China and India, were flawed, and put the USA at a competitive disadvantage; and that expenditure on new technologies, such as trapping CO₂ in deep salt-water-laden rock formations, should take precedence over emission reductions. Bush appears to be driven most by concern about the possible economic consequences. Indeed, in March 2001 he had declared: 'In terms of the CO₂ issue, I will explain as clearly as I can today and every other chance I get that I will not do anything that harms our economy. Because first things first are the people who live in America. That is my priority.'

The entire debate was also an aspect of America's bitter culture wars. To most conservatives, environmental concern was an aspect of the counter-culture, while, to the religious right, there was a sense of a God-given right to make use of the Earth. Sectional interests and cultural factors ensured that American policy-making was not greatly informed by scientific knowledge or characterized by secular processes of cause and debate. Given America's role as the world's leading economy and consumer, this was very unfortunate, and represented a major qualification of the argument that collective progress represents a way to deal with problems that cannot be handled at the individual level.

The issue also greatly contributed to anti-Americanism. Hurricane Katrina led Jürgen Trittin, the German Environment Minister, to describe the USA in 2005 as 'climate-polluter headquarters'. It is important, however, not to use the issue simply as one for America- or Bush-bashing. Many other states have displayed a far worse care for the environment as they industrialized in recent decades, most obviously China and India,

while high unemployment levels across much of the European Union are, in part, a comment on the consequences of the over-regulation of business there. Furthermore, George W. Bush's faults were an accentuation of those of much of American society, which, indeed, is a reason why he appeared to move some of his critics to despair.

Within the USA the debate over environmental pressures was not simply a matter of Kyoto, an approach that could be readily subsumed by conservatives into their ideas of national sovereignty and, in particular, the rejection of international constraints that they trumpeted. There was also the question of the impact of climate change within the USA. This was dramatized in 2005 as a result of the consequences for the ultimate American wilderness, Alaska. A bi-partisan senatorial tour provided public confirmation of this impact, which had received attention from the late 1990s. Then, the thinning of the sea ice attracted comment. Its retreat exposed coastal areas to winter storms, speeding coastal erosion. Subsequently, there has been attention to the melting of the permafrost, which provides a basis for the piles on which Native houses are built. Its melting made both houses and trees precarious. The rate of change was unprecedented. The summer melting period is getting longer by about five days per decade; the sea ice has thinned by about a half from 1950 to 2005; and, on present trends, there will be none at the North Pole by the summer of 2080. In 2005 the ozone level over the Arctic thinned to its lowest level since records began.

The notion of controls on greenhouse-gas emissions, however, hit at the assumptions of powerful parts of the constituency that supported George W. Bush. At the same time, it suggested differences within this constituency. Legislation requiring car makers to cut emissions from vehicles sold in the state won support in Oregon, where the House is Republican, as well as from the Republican Governor of California, Arnold Schwarzenegger, while Republican-controlled states in the North-East expressed interest in emissions trading schemes, but there was far less support in the South. Similarly, a number of large concerns, such as Ford and DuPont, announced commitments to limiting energy consumption, but this was of scant interest to most suburban consumers. Nevertheless, the energy crisis of 2005 eventually led the President to urge energy conservation in the shape of

driving less and more slowly, and using less electricity by turning down air conditioning and switching off lights. This repetition of the policies of the Carter administration, one that Republicans derided at the time and subsequently, indicated the extent to which ideology sometimes has to yield to circumstances.

Apart from global warming, conservation issues also pressed other buttons in the crucial field of rights. The most serious was that of land, and, specifically, control over its use. This led to local and national political struggles, not least Republican pressure for the development of the extensive public lands in the West and Alaska. In addition to underlining the extent to which the role of government was an issue, development pressures on land also created differences between citizens, which, in turn, helped to involve politicians and judges, competing, and overlapping, arbiters of disputes at every level. Property rights in the West were again contentious, with landowners challenging the split estate law that gave them only surface rights, and thus providing mineral companies with opportunities.

The sensitivity of controls was indicated in 2005 when, in giving judgement on *Kelo v. New London*, the Supreme Court interpreted the governmental power of eminent domain, the compulsory purchase of property for public use, to include the benefit of private interests that might yield indirect public benefit through higher taxes. Irrespective of the merits of the case, the outraged response to such a constraint on private property rights suggested that any attempt to use environmental causes to the same end would face major difficulties. In Oregon the state's attempts to use land-use planning in order to contain sprawl was challenged in 2004, when, with Measure 37, a referendum gave the right to those who owned land prior to 1973 to develop it or to receive compensation. The drift of American society was also indicated by the extent to which coastal sea-defences in the Gulf of Mexico were compromised by extensive building on offshore islands and marshlands, and the related draining of wetlands. Both allegedly helped to accentuate the devastating impact of Hurricane Katrina in 2005.

Discussing these issues with Americans indicates the very varied and contentious nature of opinions over development and the extent to which it pushes all sorts of buttons of concern and, indeed, outrage.

Much of the debate is not new, but that does not make it any less urgent. The debate also poses issues that question the value of accustomed political responses. Just as liberals are challenged by the extent to which concern for individual rights has hindered the struggle against the dangerous inroads of narcotic drugs, and may also be a weakness in the resistance to terrorism, so conservatives need to consider whether self-righting notions of economic responsiveness, and a hostility to the precepts and practice of government regulation, offer a sufficient remedy to environmental degradation. It will not be possible to sit aside and watch the results on television. The change is such that everyone, whatever their background, is affected. This is very much a shared experience, but one that many prefer to ignore or to blame on others.