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Preface

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A year after I returned to the United States from Great Britain, Mein- hof Dierkes of the Science Center in Berlin invited me to prepare a paper on the state of the art of cross-national research on environmental policy. This paper was subsequently presented at the conference “Cross-National Policy Research,” held in Berlin in December 1983. Both the preparation of this paper and my participation at the Berlin conference provided me with a rare opportunity to understand the links between my own research and that of the other scholars working in this area.

The task of typing and retyping this manuscript—made all the more daunting by my illegible handwriting—fell to four people: Nadine Ze- linski, Christine Lundholm, Gwen Cheesberg, and Marcie McGaugh. I can never adequately thank them for their perseverance and good cheer.

I gratefully acknowledge the influence of my parents, Harry and Charlotte Vogel, who laid the foundations for my interest in Europe while I was growing up in New York City.

My greatest thanks go to my family, Virginia, Philip, and Barbara, who accompanied me to Britain and survived the coldest London winter in nearly a century. They now know more about British environmental regulation than anyone in their right mind would want to know.

As always, my greatest debt is to my wife, Virginia, whose faith in me during the three years I worked on this book helped sustain my own.

David Vogel

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Abbreviations

ACP Advisory Commission on Pesticides
BACA British Agricultural Chemical Association
bpm best practicable means
CBI Confederation of British Industry
CEGB Central Electricity Generating Board
CLEAR Campaign for Lead-free Air
CoEnCo Council for Environmental Conservation
CPRE Council for the Protection of Rural England
CSD Committee on Safety of Drugs
DOE Department of the Environment
EDB ethylene dibromide
ECC European Economic Community
EIA environmental impact assessment
EPA Environmental Protection Agency
ETS emergency temporary standard
FDA Food and Drug Administration
FOE Friends of the Earth
FRG Federal Republic of Germany
GNP gross national product
HSC Health and Safety Commission
HSE Health and Safety Executive
HSWA Health and Safety at Work Act
ICI Imperial Chemical Industries
LBC London Brick Company
LEG liquefied energy gas
LNG liquefied natural gas
MP member of Parliament
NIOSH National Institute of Occupational Safety and Health
NUR National Union of Railwaymen
ABBR EVIATIONS

OECD Organization for Economic Cooperation and Development
OSHA Occupational Safety and Health Act/Administration
OPEC Organization of Petroleum Exporting Countries
PCB polychlorinated biphenyl
ppm parts per million
PROBE Public Review of Brickmaking and the Environment
PSD prevention of significant deterioration
PSPS Pesticides Safety Precautions Scheme
RTZ Rio Tinto-Zinc
RWA regional water authority
SEC Securities and Exchange Commission
SSSI sites of special scientific interest
TCDD 2,3,7,8-tetrachlorodibenzo-dioxin
TRC Transport Reform Group
TUC Trade Union Council
UK United Kingdom
VC vinyl chloride
WARA Wing Airport Resistance Association
WQO water-quality objective

National Styles of Regulation
Introduction

Both the Americans and the British have long histories of concern for the quality of their physical environments: the “countryside” occupies a status in English culture similar to that enjoyed by the “wilderness” in the United States. The Alkali Inspectorate, the central government body responsible for controlling the more complex sources of air pollution, was established by Parliament in 1861, while the framework for American conservation policy dates from the Progressive Era. The efforts of reformers at the turn of the century to enact smoke-control ordinances in the United States paralleled those of the Coal Smoke Abatement Society, established in London about the same time; in fact, civic groups in Pittsburgh described the periodic air inversions that blacked out their city as “Londoners.” More recently, the Clean Air Act enacted by Congress in 1963 literally took its name from the statute Parliament had previously approved following the London “killer fog” of 1952.

Over the last twenty years, awareness of environmental issues has increased substantially in both the United States and Great Britain. The wreck of the oil tanker Torrey Canyon off the coast of Cornwall in 1966 was followed a year later by the blowout of an oil well off the coast of Santa Barbara. The publication of Silent Spring in the United States was followed within two years by a report from the Nature Conservancy in Britain documenting the chemical contamination of the eggs of sea birds. And since the early 1970s the press of both nations has regularly carried reports describing the threat posed by toxic wastes to human health. Many of the issues that have surfaced in Britain—the siting of a third international airport to serve the London area, the mining of natural resources in national parks, the location of energy-related infrastructure, the safety of nuclear energy, the lead content of petrol (gasoline), the
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construction of motorways (highways) in rural and urban areas, the disposal of toxic wastes, the weight of lorries (trucks) permitted on British roads, the "export" of acid rain—are similar to those that have appeared on the political agenda of the United States.

Since the mid-1960s the membership of environmental organizations and their involvement in political activity have increased substantially in both countries. The membership of the Sierra Club increased from 65,000 in 1968 to 196,000 in 1972, while that of the National Audubon Society nearly tripled during the same period. During the same four years the Society for the Promotion of Nature Conservation increased its membership from 35,000 to 75,000 and the membership of the Royal Society for the Protection of Birds expanded from 41,000 to 108,000. In addition, new environmental organizations were established in both societies, including the Conservation Society and the Council on Environmental Conservation in Britain and the Environmental Defense Fund and Environmental Action in the United States. Two organizations, Greenpeace and Friends of the Earth, have chapters in both societies. Environmental organizations in both countries have drawn their support from roughly the same socioeconomic base—the more affluent and highly educated—and both movements have worked closely with the media to make the public more aware of the environmental dimensions of both corporate and government decisions.

During the first half of the 1970s, each government responded to the public's increased concern about environmental quality with important administrative and legislative initiatives. A permanent Royal Commission on Environmental Pollution was established within a few months of the Council on Environmental Quality, and the organization of a Department of the Environment in Britain closely followed the establishment of the Environmental Protection Agency in the United States. Between 1969 and 1974—a period that coincided with the high point of environmental concern in both countries—each nation enacted important environmental statutes: the National Environmental Policy Act (1969), the Clean Air Act Amendments (1970), and the Federal Water Pollution Control Act (1972) were adopted by the United States, and the Deposit of Poisonous Waste Act (1972), the Water Act (1974) and the Control of Pollution Act (1974) were enacted by Parliament. All were approved with substantial bipartisan support, with the most important initiatives taking place while the more conservative political party was in power in each country.

Despite these similarities, it is the differences in the strategies of the two nations for improving the quality of their physical environment and safeguarding the health of their population that are most striking. Notwithstanding the common roots of their political and legal systems, their approaches to environmental regulation differ from each other more than do those of any other two industrialized democracies.

√ On balance, the American approach to environmental regulation is the most rigid and rule-oriented to be found in any industrial society; the British, the most flexible and informal. The United States makes more extensive use of uniform standards for emissions and environmental quality than does any other nation; the British, with a handful of exceptions, employ neither. The United States requires the preparation of elaborate environmental impact statements; their use remains optional in Britain. The United States makes virtually no use of industry self-regulation to improve environmental quality; the British rely on it extensively. Regulatory authorities in America take companies to court more frequently than those of any other country; prosecution in Great Britain is extremely rare. The thrust of American environmental regulation has been to restrict administrative discretion as much as possible; in Britain regulatory officials remain relatively insulated from both parliamentary and judicial scrutiny. While environmental regulation in Great Britain has exhibited remarkable continuity over the last three decades, only in Japan has the direction of environmental policy changed as rapidly over the last twenty years as it has in the United States. And while the saliency of environmental issues in different countries has varied over time, over the last fifteen years in no nation has environmental policy been the focus of so much political conflict as it has in the United States.

√ The most striking difference between the environmental policies of Great Britain and the United States has to do with the relationship between business and government. While in every industrial nation businesses have had to confront an increase in environmental regulation since the late 1960s, no other business community is so dissatisfied with its nation’s system of environmental controls as the American business community. In Great Britain, by contrast, the relations between the two sectors have been relatively cooperative. Not only do regulatory officials tend to believe that virtually all companies are making a good-faith effort to comply with environmental regulations, but in the scores of interviews that I conducted with corporate executives in Great Britain, including several with the subsidiaries of American-based multinationals, not one could cite an occasion when his firm had been required to do anything it regarded as unreasonable. In fact, the British business community has been among the most consistent defenders of its nation’s system of en-
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In America, environmental regulation has seriously exacerbated tension between business and government; each tends to accuse the other of acting in bad faith. Many American executives and students of regulation blame environmental regulation for many of the difficulties that have confronted the American economy in recent years. It has been accused of reducing productivity, increasing inflation and unemployment, impairing the rate of new capital formation, needlessly delaying important new investments—particularly in the area of energy—creating additional paperwork, and diverting corporate research and development expenditures from productive to nonproductive uses. But while there is no shortage of explanations for the poor performance of British industry in the postwar period, environmental regulation is not among them. Significantly, while both the Thatcher government and the Reagan administration have sought to reduce the burdens of government on industry, only the latter has attempted to make any substantial changes in environmental policy.

Is the relative lack of tension between government officials and industrial managers in Britain due to the latter's "capture" of the former? How do the two countries compare in regard to the effectiveness of environmental regulation? While American rules and regulations enacted since 1960 do demand more from industry, environmental quality has not improved more rapidly in the United States. Instead policy implementation in the United States has become more contentious. While it is difficult to make cross-national comparisons of policy effectiveness, on balance the two nations appear to have made comparable progress in controlling industrial emissions, safeguarding public health, and balancing conservation values with industrial growth.

Between 1958 and 1978, urban ground concentration levels of sulfur dioxide fell by approximately 50 percent in Great Britain, while between 1966 and 1979 they declined by approximately 75 percent in the United States. Between 1958 and 1968 the emissions of smoke from industrial sources declined by 94 percent in Great Britain, while between 1970 and 1977 particulate emissions in America were nearly halved. The restrictions on the burning of coal established by the Clean Air Act (1956) have played a critical role in improving air quality in many of Britain's cities. London's famous fog, which in addition to reducing visibility presented a substantial threat to public health, has now all but disappeared. As a result of the Clean Air Act Amendments of 1967, 1970, and 1977, American automobile emissions have been reduced by 67 percent and air quality has measurably improved in most urban areas.

Britain's water quality has also substantially improved over the last two decades: the Thames, whose foul odors at one time made it difficult for Parliament to conduct its business, is now the cleanest tidal river in the world and contains more than a hundred species of fish. The transfer of responsibility for the control of water pollution from the American states to the federal government has led to a substantial improvement in many of the nation's bays and lakes, including Lake Erie, which, like the Thames, was once considered "dead." Both nations have substantially expanded the amount of land designated as "conservation areas," and each has been able to bring on stream major new sources of energy—Britain in the North Sea off Scotland, America in the North Slope of Alaska—without adversely affecting the ecology of either region.

At the same time, the records of both nations exhibit a number of shortcomings. The United States has experienced more difficulty than Britain in controlling the disposal of toxic wastes and reducing groundwater contamination, while the British record with respect to the safety of its nuclear energy facilities is considerably poorer. On the other hand, Canada's criticisms of the inadequacy of American controls over sulfur emissions from midwestern utilities are similar to those leveled by the Swedes against the British policy of controlling sulfur emissions through the construction of "tall stacks." In addition, both nations contain waterways that remain highly polluted, and air quality remains poor in parts of the north of England and in the Ohio River Valley.

My argument is not that either nation's environmental controls have been effective, but that Britain's emphasis on voluntary compliance has not proved any more—or less—effective in achieving its objectives than the more adversarial and legislative approach adopted by policy makers in the United States. American regulatory policy has been more ambitious, but as a result it has produced greater resistance from business. British regulatory authorities demand less, but because their demands are perceived as reasonable, industry is more likely to comply with them.

Is environmental regulation less contentious in Britain because compliance has been less costly? Over the last decade, both nations have devoted approximately the same share of their gross national product to pollution control. While particular American industries have incurred heavier compliance costs than their British counterparts, they have also been more able to afford them. On balance, business opposition to environmental regulation in the United States has less to do with economics than with politics. It is not that the American system of regulation is an
adversarial one because the costs of compliance are so high; rather it is the adversarial nature of American environmental regulation that makes both the direct and indirect costs of compliance appear excessive. It is the way in which environmental policy is made and implemented—not the direct cost of complying with it—that accounts for the resentment it has aroused within the American business community and the relative lack of such resentment on the part of the British business community.

Administrators in Britain enjoy substantially more discretion than their counterparts in the United States. Less bound by fixed standards, they are able to tailor regulations to the particular circumstances of individual firms and industries. Moreover, the rules they issue tend to be based on a consensus among engineers and scientists in both sectors. This is particularly true in the highly controversial area of risk assessment. In America, on the other hand, regulatory officials have often found themselves pressured by the courts and the Congress to make and enforce rules that are perceived as both unreasonable and arbitrary by the firms that have to comply with them. American environmental regulations have tended to be technology-forcing, while British regulatory requirements have been tied to both the technological and financial capacity of industry to comply with them. The British system also imposes fewer administrative and legal costs on industry. Because the pace of policy innovation is more gradual, however, the British system creates less uncertainty on the part of corporate planners. In sum, environmental regulation may have similar environmental and economic impacts in the two countries, but its political consequences differ substantially.

The differences between British and American regulatory policies are not confined to environmental regulation. We can in fact use environmental policy as a basis for generalizing about the politics and administration of government regulation in both societies. Analysis of occupational safety and health regulation, consumer protection policy, the regulation of drugs and hazardous substances, and the supervision of financial markets in the two countries reveals that each nation does exhibit a distinctive regulatory style. On the whole, British regulation is relatively informal and flexible while American regulation tends to be more formal and rule-oriented. Britain makes extensive use of self-regulation and encourages close cooperation between governmental officials and representatives of industry. The United States does little of the former and has generally been suspicious of the latter. Both the legislature and the courts consistently play a more active role in making and enforcing regulatory policy in the United States. Yet on balance American workers, consumers, and investors are no better protected than their counterparts in Great Britain.

By controlling nonindustry access to the regulatory process and insulating many of its regulatory bodies from public scrutiny, Britain has attempted—with a fair degree of success—to defuse much of the political conflict associated with government regulation in the United States. Many of Britain's regulatory policies are formulated and implemented through mechanisms of interest-group representation that are essentially corporatist. By contrast, both the making and implementation of government regulation in the United States take place in a large number of highly visible, publicly accessible, and relatively adversarial forums: America's mode of interest-group representation tends to be more pluralist than Britain's.

What is the origin of these national differences in regulatory style? The approaches of the British and American governments to the regulation of corporate social conduct were not always so dissimilar. Government-business relations were highly adversarial during the period of rapid industrial growth in both societies: modest initial efforts to temper some of the worst abuses associated with industrial development met with strong and effective resistance from each nation's industrial community. To read the novels of Charles Dickens or Upton Sinclair is scarcely to be impressed by any substantial differences in the politics or cultures of government regulation in the two societies during their industrial revolutions. The patterns of business-government relations subsequently underwent substantial change in both nations. There are important similarities between the pattern of government regulation of industry established during the 1860s and 1870s in Great Britain—the period of mid-Victorian reform—and that of the Progressive Era in the United States. Both nations established systems of regulation that substituted statutory controls for the common law, provided officials with substantial discretion, made minimal use of prosecution, placed a high value on technical expertise, and encouraged regulatory authorities to act as educators rather than as policemen.√}

√ In many respects, the contemporary British approach to regulation resembles the pattern of government regulation adopted in the United States at both the state and federal levels during the Progressive Era. In America, however, the politics and administration of social regulation changed substantially in the late 1960s and early 1970s, becoming more centralized, more legalistic, more visible, and more contentious. This shift can be seen not only in environmental regulation but also in consumer protection and occupational health and safety. Why did one nation respond to its citizenry's increased concern with the externalities associated with industrial growth during the 1960s by making only marginal modifications in the approach to regulation that it had developed
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a century earlier, while the other chose fundamentally to transform its strategy for controlling the social dimensions of corporate conduct?

In brief, the mid-Victorian style of regulation proved resilient because it rested on three elements: a highly respected civil service, a business community that was prepared to defer to public authority, and a public that was not unduly suspicious of either the motives or the power of industry. Together these three elements make possible a system of regulation based on a high degree of cooperation and trust between industry and government. The legacy of Progressivism, by contrast, proved ephemeral in large measure because America remained very much a "business civilization"—a society in which civil servants continue to enjoy relatively low status, in which business has remained highly mistrustful of government intervention, in which much of the public tends to mistrust both institutions. As a result, while the consultation of industry by regulatory officials continued to be regarded as legitimate in Britain, in America cooperation between industry and government became identified with a betrayal of the public trust.

Each nation's approach to the regulation of industry needs to be understood within the political and social context in which it evolved. For all its myriad inefficiencies, the American approach to social regulation has forced industry to allocate far more resources to environmental and consumer protection and occupational health and safety than it would otherwise have done. Had the American style of regulation remained similar to the British, it is highly unlikely that the United States would have made as much progress as it has over the last two decades in improving its environment and protecting its workers and consumers. On the other hand, had British officials adopted a more aggressive enforcement strategy, they might well have undermined the cooperation of industry on which their system of compliance is based; the result might have been more conflict and only marginally improved compliance. In short, the effectiveness of the British system of regulation rests on securing industry's cooperation to much the same extent that compliance in the United States has required that business be coerced.

At the same time, there is no doubt that the American approach to regulation, for all its well-documented shortcomings, is becoming more widespread. If, during the 1960s and early 1970s, many liberals in the United States viewed the European social democracies, with their highly developed welfare states, their full employment policies, and their labor-management cooperation, as embodiments of an ideal that they hoped America would emulate, then over the last decade much the same could be said of the perception of American government regulation on the part of many people in Europe and Japan. For many environmentalists and consumer and trade union activists throughout the industrialized world, the American style of regulation represents a model to which they would like their nations to move closer. While few appear to believe that government regulation has been more effective in the United States than in their own countries, they are certainly convinced that the effectiveness of their own nation's regulatory system could be enhanced if they had the opportunities and the resources to participate in the regulatory process that their counterparts enjoy in the United States.

While the shortcomings of the adversary relationship have been exhaustively documented by students of government regulation in the United States, the American approach toward regulation developed during the 1970s appears to be the wave of the future while the British seems to be an echo of the past. This perception is particularly evident on the European continent. In a number of respects the politics of pollution control and conservation in the Federal Republic of Germany is similar to that of the United States in the late 1960s and early 1970s. Environmental regulation is now as salient an issue in the FRG as it was in the United States fifteen years ago. In response to public criticism of the adequacy of its controls over emissions from automobiles and coal-burning power plants, the German government has enacted standards that are now the strictest in Europe. Of even greater significance, the rules and regulations emanating from the European Community over the last decade increasingly resemble those adopted by the United States in the early 1970s. Their standards are uniform, relatively strict, and technology-forcing, and they include statutory deadlines; not surprisingly, they have become the focus of growing criticism from the European business community. They have also been the source of considerable tension between Britain and the Community's other members, not only with respect to environmental regulation but also in the areas of consumer protection, corporate governance, and corporate disclosure. Ironically, just as there are some signs that the regulatory process is becoming more cooperative in the United States, it is becoming more adversarial in much of Europe.

Students of American politics have invariably viewed the United States as the most conservative of capitalist polities: its government plays a marginal role in the allocation of capital, it has relatively little public ownership, and its citizens appear to be uniquely committed to the values of capitalism and private enterprise. Yet this portrait of American "exceptionalism" is incapable of accounting for the fact that on balance the United States has attempted to adopt a more coercive approach to the regulation of corporate social conduct than any other industrial society.
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The United States remains exceptional, but, at least with respect to this dimension of business-government relations, this exceptionalism is precisely the opposite of what much of the literature on American politics would have led one to expect.

Far from occupying a uniquely privileged position, as Charles Lindblom has described it, industry has been forced to struggle harder to resist additional government restrictions on its prerogatives in the United States than in any other capitalist nation. ¹ The United States may be a welfare-state laggard, but over the last two decades it has moved more rapidly and aggressively—though not necessarily more successfully—to tighten controls on corporate social conduct than any other capitalist state. Other nations may have stronger or more radical trade unions, but in no other capitalist polity have middle-class-based public interest movements been so well organized or so influential as in the United States. America may have fewer nationalized firms than any other capitalist nation, but it has nationalized proportionately more land for conservation purposes than any other capitalist polity. (In fact, government ownership of land is more extensive in the United States than in any other capitalist nation.) And while Americans may exhibit a high propensity for risk taking in their business and investment activities, no nation has consistently adopted a more conservative approach to the assessment of the risks associated with new technologies and products than the United States.

This situation is not novel. In Modern Capitalism, published in 1965, Andrew Shonfield noted that anyone “coming from Europe and observing the behavior of the people in industry and commerce… may well be struck by the way in which it seems to be accepted that it is part of the lot of businessmen to be pushed around intermittently by one Federal agency or another.” He added: “Some government controls over the activities of private enterprise in the United States are unusually fierce, by the standards of other countries.” Shonfield specifically cited the Securities and Exchange Commission, which had “established standards for comprehensive and frequent reporting of the affairs of companies… far more stringent than anything in Europe.” He also observed that “except perhaps for Sweden, labels are nowhere so closely regulated as in the United States.”² With the emergence of the new wave of social regulation over the last two decades, the contrasts Shonfield noted have become even more pronounced.

The uniqueness of the United States' regulatory style has been amply documented in virtually every comparative study of government regulation. What students of comparative regulatory policy—particularly those in the United States—have overlooked is that Britain's regulatory style is also distinctive. In the area of environmental regulation, for example, Britain's approach contrasts sharply with that of other European nations and of Japan. Britain makes less use of fixed environmental quality or emission standards than any other capitalist nation and relies more extensively on nongovernmental bodies for policy implementation. These differences have become a source of growing tension as the European Economic Community has pressured Britain to harmonize its regulatory policies and procedures with those of the Community's members on the continent. In a number of respects the Community's regulatory policies have more in common with the system of regulation adopted by the United States over the last fifteen years than they have with the British system, which remains rooted in the traditions of the common law.

Virtually every study of Britain written by political scientists and economists over the last decade has emphasized the failures of its government's policies in regard to industry.³ Compared with those of other capitalist nations, the efforts of the British government to improve the nation's economic performance in the postwar period have been remarkably unsuccessful. The same cannot be said, however, of its efforts to improve corporate social performance. Despite its economic difficulties, the progress Britain has made in preserving and enhancing the quality of its physical environment and in protecting the health and safety of its subjects is roughly comparable to that of many of its more successful competitors. Equally important, its efforts have enjoyed a relatively high degree of legitimacy.

Britain's record certainly compares favorably with that of Japan, whose single-minded commitment to rapid industrial development in the postwar period exposed its citizens to considerable discomfort and injury; by the late 1960s Japan was literally the most polluted nation in the world.⁴ It was only after a series of widely publicized catastrophes that the Japanese government first attempted to balance its commitment to economic expansion with the protection of public health and amenity. While the Japanese have devoted considerable resources to improving their physical environment since the special “Pollution Diet” of 1970, controversy continues: violent demonstrations have been held, corporate executives have been publicly humiliated, and the nation has been exposed to a series of protracted, expensive, and extremely bitter lawsuits. The Japanese economy has been able to absorb considerable expenditures on pollution control without impairing its international competitiveness, but the Japanese have found it difficult to integrate environmental concerns and citizen groups into their political system. Likewise, German industry has performed far better than Britain's over the last century, but many of its citizens have recently become extremely
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dissatisfied with the adequacy of its controls over pollution; hence the emergence of the militant Green party. And while American environmental controls have been relatively effective, its citizens certainly do not perceive them to be so. We have no shortage of explanations for the failures of British industry, but students of British politics have all but ignored Britain’s achievements in this other dimension of business–government relations.

It is not only the direction of the differences in government regulation between Great Britain and the United States that is surprising, but their magnitude. Virtually every comparative study of business–government relations has stressed the similarities between the political economies of Great Britain and the United States. In marked contrast to the economic development of both of the nations on the Continent and of Japan, that of the world’s first two industrial nations was initiated and managed not by government but by entrepreneurs. As the two classic examples of a “liberal” state, both governments, although now more interventionist than they were during their periods of rapid industrial development, still appear to have less institutional capacity to shape the directions of their nations’ economic development than other capitalist polities. Yet, however illuminating this framework for understanding the similarities of economic decision making in Great Britain and the United States, it is clearly unable to account for the radically divergent approaches these two nations have taken to regulating industry.

The study of national regulatory styles thus provides a useful way of exploring the relationship between business and government in both Western Europe and the United States. By linking the study of government regulation to that of comparative politics, it yields important insights into both areas of political science.

Chapter One

The Politics of Environmental Protection in Great Britain

Historical Background

As the world’s first industrial nation, Britain has the world’s oldest system of pollution control. The Alkali Inspectorate, established in 1863, was the world’s first pollution-control agency, while Britain’s conservation movement dates from the latter part of the nineteenth century. Over the ensuing century Britain gradually but steadily expanded its controls over industrial activity: it enacted the world’s most extensive system of land-use planning following World War II and significantly strengthened its controls over air pollution in the mid-1950s. Thus before the upsurge of public interest in environmental regulation in the mid-1960s Britain already had in place a fairly extensive system of environmental controls.

The first recorded environmental regulation in the British Isles dates from the thirteenth century. It was promulgated by Edward I, who in 1273 issued a decree prohibiting the burning of “sea coal” in order to protect the health of his subjects. Neither his decree nor a similar one issued by Queen Elizabeth three centuries later, however, led to any discernible improvement in air quality, even though one violator was executed in the sixteenth century. As Britain industrialized in the latter half of the eighteenth century, the increased burning of coal produced dense concentrations of particulates (smoke) in the nation’s urban centers. Legislation enacted in 1821 in response to this pollution made it easier for individuals to sue the owners of furnaces that were emitting excessive smoke. This statute did little to prevent the continued deterioration of air quality, however, and the influence of industrial inter-
Chapter Four

A Comparison of British and American Environmental Regulation

While it is difficult to determine the comparative effectiveness of governmental regulations in different countries, Great Britain and the United States appear to have made comparable progress in improving air and water quality, preserving scenic areas, and protecting the health and safety of their people. On balance, neither nation's regulatory policies have been significantly more or less effective than the other's: both have had some notable achievements and some conspicuous failures. The British system's emphasis on secrecy, informality, and voluntary compliance has proved no less effective in controlling the externalities associated with industrial growth than the more open, legalistic, and adversarial style of regulation adopted in the United States. Moreover, both nations appear to have struck a roughly similar balance between economic and amenity values: each has allocated approximately the same proportion of its gross national product (GNP) to pollution control. And in neither nation have environmental controls measurably contributed to the difficulties its economy has experienced in recent years.

In most areas of environmental regulation, not only are American laws and regulations stricter, but nonindustry constituencies enjoy substantially more access to the regulatory process. Why, then, is the American record not demonstrably better? And why have the burdens on industry not been greater? The main reason is that the enforcement of American laws and regulations has been uneven. When one focuses on the implementation of environmental regulation rather than on the regulations themselves, the significance of many of the differences in the two nations' environmental policies diminishes.

But while the two nations' distinctive strategies for regulating industry have differed only marginally in their environmental and economic impact, they produced markedly divergent political outcomes. Environmental policy in the United States has been associated with a major increase in political conflict between industry and government; it has made an already adversarial relationship significantly more contentious. This has not been the case in Britain. While the relations between business and government in this policy arena have certainly not been free from conflict, on the whole the British business community has been relatively satisfied with its nation's system of environmental controls. These different responses are in large measure due to the different ways in which environmental regulations have been made and enforced in the two societies.

The Effectiveness of Regulation

Methodology

Measuring the impact of regulation on environmental quality is extremely difficult within a given political system, let alone cross-nationally. One problem is that governmental regulation is only one of several factors that affect both emission levels and environmental quality. Without doubt the most important factor is simply the rate of economic growth: all other things being equal, the more industrial production, the more pollution. (Between 1965 and 1975 total industrial production increased 31 percent in the United States and 14 percent in Britain.) On balance, the global slowdown in growth rates since 1973 has done more to improve air quality in both Great Britain and the United States than the regulatory efforts of either the Alkali Inspectorate or the EPA. For many communities in the heavily industrialized regions of both countries, undoubtedly the most important single factor responsible for reducing the pollution to which they have been exposed over the last decade has been the rate at which plants have been closed in response to international competition and a decline in domestic demand. (Between 1965 and 1975 iron and steel production declined by 28 percent in Great Britain and 10 percent in the United States.) Slower growth rates also have a positive effect on the preservation of wilderness and other pristine areas: the less growth, the less industry's need for new sites for industrial production, energy generation, and the mining of natural resources.

The emissions of particular pollutants are affected not only by the volume of industrial production but also by its particular mix. (As of 1970, high polluting industries constituted 14.9 percent of the GNP of the United States and 12.4 percent of Britain's GNP.) Since new plants
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are in general less polluting than older plants, to the extent that older facilities either modernize, relocate, or shut down, emissions are likely to decline. However, the role of environmental regulation in changing the industrial base of either country appears to be marginal; economic factors are far more important.

While pollution is controlled primarily by regulation of emissions, emission levels represent a proxy for what is the primary purpose of pollution control, namely, the improvement of air and water quality. The relationship between the two, however, is by no means straightforward. Water quality is significantly affected by the presence of various chemicals in the runoffs from agricultural lands—a form of pollution beyond the control of water-pollution authorities. Air-quality levels are influenced not simply by the volume of emissions but also by the strategy by which they are controlled. The decision of pollution-control authorities in Great Britain and the United States to allow utilities and factories to disperse emissions has led to the improvement of air quality in many regions, although emission levels have not been proportionately reduced. For other areas, of course, the reverse is the case: their emission levels can be reduced and yet their air quality can continue to deteriorate. This is a particularly important issue for both the United States and Britain, whose utilities produce considerable quantities of sulfur dioxide that are then displaced both within their boundaries and outside them.

Topological factors also affect environmental quality. Because Great Britain has a relatively large number of rapidly flowing rivers, a proportionately long coastline, and relatively high and strong winds, much of its environment is capable of absorbing relatively large amounts of pollution without adverse affects on the environmental quality experienced by its citizens. Certainly no British city has the peculiar geographical and climatic disadvantages of Los Angeles. On the other hand, Britain's much smaller size and greater population density (288 persons per square kilometer versus 22 in the United States) provide it with fewer options for dispersing its heavily polluting industries away from population centers. They also make the preservation of land for conservation purposes more difficult.

In both countries different regions experience different levels of environmental quality, owing both to topographical factors and to the pattern of industrial location. Moreover, the policies of each government have emphasized the improvement of environmental quality in some regions more than in others. As a result, environmental quality varies substantially within each nation; in fact, the levels of both air and water quality vary as much within Great Britain and the United States as between them.

British and American Environmental Regulation

Comparing the two countries in terms of the effectiveness of environmental regulation is also complicated by a lack of consensus as to what constitutes a reasonable risk or unacceptable hazard. Consider, for example, the following comparison of American (in this particular case, California) and British regulations governing the siting of liquefied natural gas terminals:

Recently California and the United Kingdom have approved sites for Liquefied Energy Gas (LEG) terminals. In this, and perhaps this alone, they are the same. After a long drawn-out process in which it proved impossible to approve any of the proposed sites, California finally, with the help of a new statute passed expressly for the purpose, was able to give approval for an LEG facility at the remotest of all the sites on the list of possibilities: Point Conception. Scotland has a longer coastline than California and most of the country is very sparsely populated (less than 25 persons to the square mile) and yet the approved site, at Mossmorran and Braefoot Bay on the Firth of Forth, lies within the most densely populated part of the entire country (with a population density of between 250 and 500 persons per square mile). Moreover, laden tankers will pass within a mile or so of Burntisland (an industrial town) and sometimes within four miles of Edinburgh—the capital city of Scotland! If the California siting criteria (explicit in Statute 1081) were to be applied to the Scottish case it would be quite impossible to approve the Mossmorran/Braefoot Bay site, and if the United Kingdom criteria (implicit in the Mossmorran/Braefoot Bay approval) were to be applied to the Californian case, any of the suggested sites could be approved, which means that the terminal would go to the first site to be suggested—Los Angeles harbor.4

As we shall subsequently see in more detail, this illustration is not atypical: American regulations in the area of health and safety have frequently been significantly stricter than Britain's. But this does not mean that American environmental regulations are necessarily more effective: whether they are or not depends on one's assessment of both the seriousness and the probability of the harm that each nation is attempting to prevent. If one accepts the risk assessment of the Health and Safety Inspectorate, then the stricter American standard did not provide any additional protection to the residents of California; it merely added to the difficulty and expense of securing siting approval. On the other hand, if one accepts the risk assessment used by the State of California—which was actually based on the results of the least conservative of six separate studies, each of which reached a different conclusion—then the American standard is more effective; that is, it provides better protection.5

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In this context, it is worth noting that while the Americans have permitted nuclear power plants to be constructed near major population centers, almost all of Britain’s nuclear power facilities are located in relatively sparsely populated areas. Evidently the two nations’ regulatory authorities have appraised the relative risks of liquefied natural gas (LNG) and nuclear power plants differently. More generally, to the extent that environmental regulation seeks to avoid future harms rather than to ameliorate current ones, comparative assessment of the effectiveness of regulation is extremely difficult. In many cases there is simply no objective of the nature or magnitude of the hazards one is seeking to minimize.

An important purpose of environmental regulation is to protect the health of the public. From this perspective, assessments of the severity of restrictions on particular substances, or even their concentrations in either the surrounding environment or the human body, merely represent proxies for what ultimately counts—how long people live and how healthy they are while they are alive. Such statistics are readily available. The life expectancy of an American born in 1981 is estimated to be 75 years; for an individual born in Great Britain, 74 years.7 The infant mortality rates of both societies are now identical. Such statistics, however, tell us relatively little about the effectiveness of each nation’s system of environmental regulation. For obviously many other factors affect both longevity and disease rates, including the availability and quality of health care, the quality of public sanitation, personal habits and lifestyles, and, most important, GNP.

Age-adjusted cancer rates are higher in Britain than in the United States: in 1979, 163.7 deaths per 100,000 males were due to malignant neoplasms in the United States compared to 185.4 for Britain; the comparable statistics for females are 107.5 for the United States and 122 for Great Britain. During the 1970s American age-adjusted cancer rates for men increased somewhat, while in Britain they slightly declined. Female age-adjusted cancer rates increased in both countries, though somewhat more in Great Britain.8 These statistics, however, tell us only about the recent past. Since many potentially dangerous substances have been introduced into the environment in the last few decades, it may be some time before their full effect is felt. Thus it may not be possible to evaluate the relative effectiveness of many of the distinctive regulatory policies adopted by the United States and Great Britain until the end of the century.

The precise relationship between industrial activity and cancer rates remains a source of considerable controversy, however; it is by no means clear what proportions of cancer are due to industrial production in general and to pollution in particular. (In both countries the most important cause of cancer remains cigarette smoking, which neither government has made a serious effort to restrict.) The fact that cancer rates differ so substantially between the sexes in both countries—British women have much lower cancer rates than American men—suggests that environmental policy itself has had only a small effect on the incidence of cancer, since presumably environmental controls—or the lack thereof—affect men and women equally. The relative importance of factors other than industrial activity is also suggested by the fact that the residents of England and Wales have a lower age-adjusted cancer rate than do American blacks.9 When we turn from cancer to other diseases caused by industrial activity, establishing the causality necessary to measure the effectiveness of government regulation is equally complex and controversial.

There is yet another difficulty with cross-national evaluations of the effectiveness of environmental regulation: each nation has its own priorities. The issue of environmental regulation has been cast in terms of the protection of public health to a far greater extent in the United States than in Britain. Not only is the United States the only nation to establish an entirely separate system for the regulation of carcinogens, but in general the American public appears to be far more anxious than the British—or indeed the public of any other industrial nation—about the threats to health and safety posed by industrial products, production, and waste disposal. In Great Britain, largely because of its greater population density, conservation and land-use issues appear much more salient. British planning policy has also emphasized visual amenity to a far greater extent than have zoning regulations in the United States.

Since 1970 air pollution has been the most salient environmental problem only in the United States and Japan, though it has recently assumed greater importance in Germany; in Great Britain and in the rest of Europe, improving water quality has been accorded a higher priority over the last two decades. The appropriate weight of trucks came to be defined as an environmental issue in Great Britain but not in the United States. In America the pollution generated by mobile sources has occupied a central place on the environmental agenda, while in Great Britain, with the exception of lead, there has been much less public interest in curbing motor vehicle emissions. The American environmental movement has given high priority to the protection of endangered species of animals. In Britain this issue has somewhat less importance for the simple reason that there are fewer wild animals left to protect, although environmentalists in both societies have devoted considerable efforts to halting the hunting of whales and protecting
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Birds. British naturalists appear to be especially interested in the protection of various species of grasses and flowers while American environmentalists have accorded a similar priority to the preservation of wetlands. In Great Britain, as in the other member states of the European Community, the regulation of noise has emerged as an important component of environmental policy; in America this issue has little political salience and is handled primarily at the local level. The protection of historic buildings and landmarks has traditionally been a concern of British environmentalists, while the American environmental movement has tended to leave this issue to other interest groups.

Such examples can be multiplied indefinitely. Each enormously complicates the task of evaluating policy effectiveness. At least a part of the differences in the environmental regulations of the two countries stems from the fact that they have both different problems and different priorities.

There is another obstacle to evaluating the effectiveness of environmental regulation in the two societies: the lack of a comparable time frame. While environmental controls in both nations have existed throughout the twentieth century, the most important contemporary initiatives in British environmental regulation took place during the 1940s and 1950s: the Town and Country Planning and Countryside acts, both enacted shortly after World War II, and the passage of the Clean Air Act and the expansion of the jurisdiction of the Alkali Inspectorate, both of which occurred during the 1950s. Only with respect to the control of water pollution did any major policy departure occur during the 1970s, and that was primarily administrative in nature.

In the United States, by contrast, virtually all of the important policy initiatives during the postwar period have taken place since the late 1960s. Between 1969 and 1972 the United States enacted the National Environmental Policy Act, the Clean Air Act Amendments, and the Federal Water Pollution Control Act, all of which radically transformed the scope and enforcement of American environmental controls. Moreover, throughout the 1970s in America, in contrast to Britain, environmental regulation has remained in a considerable state of flux: eight major laws were either enacted or substantially amended between 1970 and 1980.

As a result, a comparative evaluation of policy effectiveness throughout the postwar period is "unfair" to the United States, since many of its most important environmental regulations only began to be implemented in the mid-1970s; to use 1970 as a base point, on the other hand, is to minimize the progress made in Britain, since many of its regulations began to take effect before that date. A further complication is that while British data go back to the 1950s, data on pollution in the United States are extremely fragmentary before 1970. In addition, Britain appears to have a more extensive and accurate system for monitoring pollution levels than does the United States. Fifteen years after the establishment of the EPA, the United States still has no comprehensive system for actually measuring changes in either air or water quality.

In view of these difficulties, any conclusions about the relative effectiveness of British and American environmental regulations must be drawn with caution. The evidence we have available does suggest, however, that both nations have made measurable though uneven progress in reducing pollution levels, safeguarding public health, and preserving amenity values. Of equal importance is what the available data do not demonstrate, namely, that either nation's environmental policies have been significantly more or less effective than the other's.

Air Pollution

Since the beginning of the Industrial Revolution, Great Britain's most serious air-pollution problem has been the smoke produced by the burning of coal. Not only did emissions of particulates impair visibility, but smoke concentration levels presented a serious threat to public health. Between 1958 and 1981, however, smoke emissions from domestic coal combustion declined by more than 80 percent; industrial emissions declined even more dramatically, from 0.51 million tons in 1958 to 0.03 in 1981. Average urban ground-level concentrations of smoke declined from 150 milligrams per cubic meter in 1957 to about 30 milligrams in 1978; by 1980–81 they were one-eighth of their 1960–61 levels. Periodic high pollution episodes still do occur as a result of adverse climatic conditions, but they have steadily diminished in both frequency and intensity; no excess deaths have been attributed to concentrations of smoke in Great Britain since the early 1960s. As of 1970 "there was no longer any evidence of sharp increases in illness related to pollution."11

The increased use of smokeless fuels cannot be attributed entirely to government regulation. Changes in social mores, leading British housewives to view a coal fire in the living room as a source of dirt rather than comfort, the installation of central heating in newly constructed council houses, and the increased availability of natural gas also played an important role in the switch to smokeless fuels. Nonetheless, the 1956 Clean Air Act does seem to have played an important role. Those communities in South Wales, the East Midlands, and sections of northern England that have chosen not to establish smoke-control zones continue to experience relatively high smoke concentration levels; the improve-
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ment in air quality has been dramatic in London, which has done so. Between 1956 and 1966 smoke emissions declined by 76 percent in London, but only 20 and 30 percent in the Midlands and the north of England. It turns out that the famous London fog, immortalized by Sir Arthur Conan Doyle and other British novelists, was in fact produced by the burning of domestic coal (also immortalized by Conan Doyle and numerous other British novelists). Since the early 1960s it has all but disappeared. In fact, "the Clean Air Act has arguably been responsible for the biggest single improvement in the lives of Londoners in the last twenty-five years." One scientist notes:

It is encouraging . . . to see that the urban excess of bronchitis mortality shows signs of reduction, and in particular death rates from bronchitis are no higher in London, at least up to about age 65, than in rural areas. It may be a little early to promote London as a health resort, but certainly there have been major strides in the control of pollution that have made it both a healthier and pleasanter place to live in than it was earlier this century.

Since the mid-1960s the number of bird species in London has doubled and the number of delicate plants able to survive in the city has substantially increased. Eric Ashby and Mary Anderson write: "Before the 1950's London was a dirty city with high levels of smoke and sulfur dioxide. Today the air over London is as clean as the air over East Anglia." To take a more international comparison, in 1967–68 the concentration levels of suspended particulate matter (smoke) averaged 55 micrograms per cubic meter in London, 112.5 in New York City. The major industrial city of Sheffield used to be regarded as "smoky and dirty"; thanks to its dramatic reductions in the levels of smoke emissions, Sheffield now claims to be "the cleanest industrial city in Europe."

In contrast to smoke emissions, most of which are produced by individual households, sulfur dioxide emissions are generated primarily by power stations and other stationary fuel-burning sources. Sulfur dioxide emissions in Great Britain remained fairly stable through the 1960s and early 1970s, averaging approximately 6 million tons. Between 1970 and 1980, however, aggregate sulfur dioxide emissions decreased by 24 percent. (While the overall trend is downward, weather conditions produce some yearly variation.) Emissions of sulfur dioxide have also declined in relation to the units of energy consumed: from slightly more than 30 tons per 1,000 tons of energy consumed in 1965 to approximately 26 tons in 1975.

Urban ground concentration levels of sulfur dioxide have declined more dramatically. This improvement appears to be attributable to two factors. One is the government's "high chimney policy" of ejecting waste gases from utilities and other large plants at high velocity into airstreams up to a kilometer high away from Britain's population centers, thus dispersing them out to sea. The second has been the reduction in smoke emissions. It turns out that when the smoke blanket is eliminated, less sulfur dioxide remains trapped at ground level. (This has been an unanticipated benefit of the 1956 Clean Air Act.) Thus urban ground concentration levels of sulfur dioxide fell from 150 micrograms per cubic meter in 1958 to about 70 micrograms in 1978, while daily concentration levels at urban sites during the winter months declined from 7 in 1977–78 to 3 in 1980–81. Both London and the northwest of England (which includes Manchester and Merseyside) recorded a 30 percent reduction in the annual mean daily concentrations of sulfur dioxide between 1970 and 1976.

Emissions from numerous major stationary sources of pollution have also declined, largely as a result of the transfer of responsibility for regulating them from local authorities to the Alkali Inspectorate. Cement works, for example, emitted 16 tons of particulate per 1,000 tons of production in 1958; by 1974 their average emissions had declined to 1.5 tons. Coal-fired power stations emitted 23 tons of particulate emissions for every 1,000 tons of coal burned; by 1974 this figure had declined to 3 tons. In addition, "massive improvements have been made in the steel industry; the mustard cloud that used to pall steel towns like Port Talbot, home base of British Steel Company's Wales division, has gone." The Alkali Inspectorate has encouraged firms in a number of industries to switch to less polluting modes of production. In 1958, for example, 295 pottery works in Stoke-on-Trent were using smoke-producing methods of firing; a decade later all had installed oil, electric, or gas-fired ovens. Between 1958 and 1968 the number of gas and coke ovens fell from 477 to 277, liquid-gas works from 140 to 81, and benzine works from 247 to 124. During the 1970s lead emissions from plants registered with the Alkali Inspectorate were halved, arsenious oxide emissions were reduced by nearly two-thirds, and emissions of vinyl chloride monomer from PCV plants declined by more than three-quarters.

Since 1972 Great Britain has progressively restricted the amount of lead permitted in petrol. As a result, even though gasoline consumption increased from 15.9 million tons in 1972 to 18.72 million tons in 1981, vehicular emissions of lead declined from 8.1 thousand tons to 6.7 thousand tons. On the other hand, both carbon monoxide and nitrogen oxide emissions from motor vehicles, which have not been regulated, have increased since 1970, primarily as a result of greater automobile use.
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Like Britain, the United States has made measurable progress in reducing emissions and ground concentration levels of both particulates and sulfur oxides. Ground concentration levels of sulfur dioxides fell 60 percent between 1966 and 1970 and an additional 40 percent between 1970 and 1979. Although the burning of coal by electric utilities—the main source of sulfur dioxide—increased by 85 percent between 1971 and 1981, the actual emissions of sulfur dioxide registered a slight decline as a result of both the installation of scrubbers and the increased use of low-sulfur coal. Between 1970 and 1977 particulate emissions declined even more substantially, from 25.5 to 13.8 million tons, while ambient concentration levels of this pollutant were reduced from 72 micrograms per cubic meter to 60. Consequently by 1980 almost all air-pollution control regions had met the EPA’s primary standards for these two hazardous pollutants.

While Britain’s efforts to reduce air pollution have focused primarily on the domestic burning of coal, the United States has given highest priority to reducing emissions from automobiles. In the decade following the Clean Air Act Amendments of 1970, motor vehicle emissions of carbon monoxide declined from 76.7 to 49.4 grams per mile traveled while total carbon monoxide emissions declined by 29 percent. The average concentration of carbon monoxide in urban areas declined by one-third between 1972 and 1978 while overall concentration levels fell an average of 31 percent between 1975 and 1980. For hydrocarbons, which play an important role in the formation of photochemical oxides (ozone), the reduction has been more substantial, from 10.8 to 5.3 grams per mile between 1970 and 1980. Although the reduction in the average size of vehicles following the energy crisis also played a role, these improvements result primarily from the installation of catalytic converters in automobiles. As in Britain, however, nitrogen oxide emissions from mobile sources have actually increased. Finally, as a result of the increased use of unleaded gasoline, air-quality data from 92 urban monitoring sites in eleven states revealed a 64 percent decline in average ambient concentrations of lead between 1977 and 1980.

The controls over both stationary and mobile sources have produced measurable improvements in air quality for most urban residents. In twenty-three metropolitan areas the number of “hazardous days” declined from 1.8 to 0.13 between 1974 and 1981; the number of “very unhealthful” days was reduced by 65 percent and the number of “unhealthful” days by 50 percent. As in Britain, however, improvements in air quality have not been uniform. The nation’s two largest urban areas continued to experience substantial pollution problems: between 1976 and 1978 New York and Los Angeles each averaged more than 200 unhealthful days per year. The air quality of Houston, Chicago, and Kansas City deteriorated during the second half of the 1970s. Overall, pollution levels declined in nine metropolitan areas between 1974 and 1978, increased in eight, and were essentially unchanged in six.

While the regulation of automobile emissions by the federal government since 1967 has contributed to improved air quality in many metropolitan areas, the actual impact of the controls established by the Clear Air Act Amendments of 1970 over stationary sources is somewhat less clear. Admittedly fragmentary data collected by the EPA indicate that sulfur dioxide concentrations actually declined more each year between 1964 and 1971 than they have done since 1971. During the second part of the 1960s they fell 11.3 percent per year, while during the 1970s they declined by only 4.6 percent. Similarly, particulate concentration levels declined 2.3 percent per year between 1960 and 1971 but only by 0.6 percent per year between 1972 and 1981. Robert Crandall argues that “these data suggest that pollution reduction was more effective in the 1960’s, before there was a serious federal policy dealing with stationary sources, than since the 1970 Clean Air Act Amendments.” Moreover, as in Britain, some share of the decline in both sulfur dioxide and particulate emissions and concentration levels during the 1970s must be attributed to the decline in energy consumption.

Water Pollution

Both nations have experienced considerably more difficulty in improving water quality, largely because of the substantial expenses involved in installing water-treatment facilities. On balance the British effort appears to have been somewhat more successful. In 1958, 86.1 percent of the lengths of rivers in England and Wales were sufficiently clean to support varied fish life and to be suitable for drinking after treatment; by 1975 this figure had increased to 91.4 percent. Approximately 12.5 percent of the length of all tidal and 6.2 percent of the length of all non-tidal rivers had their quality measurably improved during this period. Between 1958 and 1980 the length of “grossly polluted” and “poor quality” non-tidal rivers and canals declined by nearly half, from 4,520 kilometers to 2,810, while that of polluted tidal rivers decreased from 760 kilometers to 440 kilometers. North Sea energy development has played an important role in this improvement. With the increased availability of gas and oil from the North Sea, Britain has been able to close its coal gasification plants, thus reducing the emissions of phenols and other chemicals into waterways.

During the 1950s Britain’s companies were using more than 40,000
tons of a branched alkyl benzene sulfonate to make domestic detergents each year. The result was the poisoning of fish and water plants, as well as the creation of massive quantities of foam that clogged up sewage plants; one was actually buried under fifteen feet of foam for several weeks. In 1957 a Standing Technical Committee on Synthetic Detergents was established, and in 1964 it secured a voluntary agreement by manufacturers not to market "hard" detergents for domestic use. Within seven years 95 percent of the detergents available for sale in Britain were biodegradable, and water quality markedly improved.

As in the case of smoke concentrations, national statistics on water quality conceal considerable regional variations. Some estuaries in England and Wales, including the Tyne, Wear, Humber, Mersey, and Severn, remain heavily polluted. "In many cases the level of pollution is sufficient to end the commercial use of shellfish, affect birds and sea mammals and restrict recreational use of nearby beaches." The contamination of urban water supplies by agricultural pesticides remains a serious problem in many areas. The seepage of hundreds of gallons of pesticides into the Rhyl River in Yorkshire in 1978 threatened to contaminate York's water supply, and nitrate concentration levels have occasionally made it necessary to recommend the use of bottled water for infants in East Anglia. In the three British rivers surveyed by the OECD, the Lee, the Wear, and the Irwell-Mersey, the annual mean concentration of nitrate increased by more than 50 percent between 1965 and 1975. In addition, the discharge of untreated sewage into the seas around Britain remains a serious problem: of the nation's 653 bathing beaches, 190 exceed the European Community's standards for bathing water quality.

The most noticeably improved river in Great Britain is the Thames. By 1950, after nearly a century of neglect, the Thames was, for all practical purposes, dead, unable to support any marine life. In the June 1978 issue of The Environment, Trevor Holloway reported that "the lower Thames was so heavily polluted for several months of the year that no dissolved oxygen could be detected... and a disquieting smell rose from the river... Today, less than three decades later, the Thames is rated as the cleanest tidal river in the world." The river's pollution levels have dropped nearly 90 percent since 1950, its offensive odor has disappeared, it currently contains more than 100 species of fish, and it is suitable for swimming. In September 1983 a salmon was caught in the river outside London, the first in more than 150 years. The fisherman was awarded a prize of £375, offered a decade earlier by the Thames Water Authority.

According to data collected by the U.S. Geological Survey, the quality of surface waters in the United States changed relatively little between 1974 and 1981. The Survey's National Ambient Stream Quality Accounting Network records changes in concentration levels of five pollutants: dissolved oxygen, bacteria, suspended solids, dissolved solids, and phosphorus. "For each of these, the vast majority of monitoring stations show no significant change in pollutant concentrations... with those showing trends of increases balanced by a comparable number of decreases." (This does not mean, however, that regulation has had no effect, since gives the significant increase in industrial output in the United States during this period, without controls water quality would undoubtedly have deteriorated.)

These statistics, like Britain's, conceal important regional variations. Numerous rivers, such as the Hackensack in New Jersey and the Penigewasset in New Hampshire, have literally been brought back to life, and substantial progress has been made in improving the quality of the Great Lakes, especially Ontario and Erie; the latter, which was once considered dead, is now teeming with fish. Moreover, "Atlantic salmon have returned to New England's Connecticut and Penobscot rivers and shellfish-bed public-beach closings due to dangerous bacteria levels have become less frequent." Overall, the quality of approximately fifty major bodies of water improved considerably during the 1970s. But according to the EPA, while "technology-based water pollution controls have improved the quality of many of the nation's rivers and streams... point and nonpoint sources of pollution, as well as other factors, continue to cause violations of water quality standards and are limiting water uses in many areas of the country." Two-thirds of the states reporting trend information to the EPA in 1982 indicated "generally improving water quality trends," but another third reported no progress at all. The water quality of the streams and estuaries of the United States as a whole has improved slightly while that of its lakes and reservoirs has marginally deteriorated.

Other Comparisons

Of the major oil spills—defined as those in excess of 2,000 tons—in marine waters recorded by the OECD between 1967 and 1978, eight occurred off the coast of the United States, while four, including the largest—the grounding of the Torrey Canyon—occurred in British territorial waters. Between 1973 and 1977 the production of PCBs declined in Great Britain from 4,067 to 283 tons; in America the percentage decline was significantly less—from 19,132 tons in 1973 to 6,046 in 1977—though the absolute decline was much greater. Between 1967 and 1975...
the consumption of commercial fertilizer per ton of cropland doubled in the United States while it increased only 25 percent in Great Britain. On the other hand, the absolute level of consumption is significantly higher in Britain (26.4 metric tons per kilometer of cropland) than in the United States (9.9 metric tons). Both countries registered a comparable increase in the use of fertilizers containing nitrogen from 1965 and 1975, though the intensity of British use was substantially greater—in fact, more than triple that of the United States. Between 1970 and 1979 the concentration of DDT in human tissue in the United States declined from 8.07 parts per million to 5.64 and that of Dieldrin from 0.23 to 0.11. While we lack comparable British data, the average daily intake of both DDT and dieldrin in Britain has remained substantially below that judged acceptable by the World Health Organization.

The United States’ safety record with respect to nuclear power appears substantially better than Britain’s. “One of the worst atomic accidents in history” occurred at Britain’s nuclear fuel reprocessing plant at Windscale in 1957, producing 40 to 400 times as much radiation as was released at Three Mile Island in 1972; the government has estimated that this radiation may have been responsible for as many as 250 cases of thyroid cancer. (In the case of these and other catastrophes and near-catastrophes that periodically beset both countries, though, it is difficult to know how much to attribute to inadequate regulation and how much simply to bad luck.) In November 1983 a British television program titled “Windscale in the Nuclear Laundry” reported that the dumping of radioactive wastes into the Irish Sea was causing cancer rates in the surrounding community well above the national average. Although a subsequent government investigation did not find sufficient evidence to support this contention, controversy over the safety of the reprocessing facility continues.

Both nations appear to be experiencing considerable difficulty in enforcing their regulations governing the disposal of toxic wastes. Britain enacted legislation regulating toxic waste disposal in 1972, the United States in 1976. Each appears to be confronted with a considerable number of sites at which toxic wastes have been improperly disposed of—in many cases threatening to contaminate groundwater supplies—though to date America’s problems appear more serious. A 1975 survey in Great Britain revealed a total of 51 disposal sites that could be considered a risk to underground water supplies, while estimates of the number of waste disposal sites that may pose “a significant threat to public health and/or the environment in the United States” range from 16,000 to 27,000; the EPA has identified 115 sites as being of highest priority for remedial action under its Superfund program because of the risk of air, surface water, or groundwater contamination, the toxicity of the wastes, and the potential for human exposure.

On the other hand, each nation appears to have been able to bring on stream major new supplies of energy—Great Britain in the North Sea off Scotland and America in the North Slope of Alaska—without producing any serious environmental damage, although because of the extreme fragility of the Alaskan tundra, the American achievement was more difficult. (In fact, the same company was extensively involved in both projects: British Petroleum.) And both nations have been equally hesitant to address the problem of acid rain: the criticisms from Canada and the American northeast of the lack of effective controls over sulfur dioxide emissions from coal-burning utilities in the Midwest precisely parallel those made of English emissions controls by Sweden and the Scots.

There is no question, however, that the British system of land-use planning has been, on the whole, extremely successful in reconciling amenity and economic values; it can claim much of the credit for the relative lack of urban sprawl in Great Britain, as well as for the generally pleasing appearance of British towns and much of the British countryside.

The vaunted English development control system...has surely been successful in doing what it was asked—controlling development in a country with a population of about 55 million in an area about the size of Wisconsin. One can only marvel at the absence of sprawl and the resulting open countryside and coastline.

Since zoning is primarily a local responsibility in the United States, the American record in this regard is much more uneven and, on the whole, much poorer—though a few states have imposed highly effective land-use controls.

The amount of land designated as national wilderness, excluding Alaska, more than doubled between 1970 and 1980, while 75 units, totaling more than 2.5 million acres, were added to the National Park Service. Likewise, the size of the greenbelt surrounding British towns and cities doubled during the 1970s and additional acres have been acquired by the National Trust. According to the International Union for the Conservation of Nature and Natural Resources, the United States and Great Britain are among only a handful of countries more than 5 percent of whose land is classified as conservation areas.

My argument is not that either the British or the American government has been effective in safeguarding the health of the public and protecting the quality of the ecosphere. Whether the effort devoted to environ-
mental protection in either nation has been adequate in the face of the manmade hazards confronted by its inhabitants is an issue on which reasonable people disagree; it is also beyond the scope of this study. Rather, my contention is that there is no evidence that either nation’s policies have been particularly more or less effective: that is to say, depending on one’s point of view, they have been equally effective or equally inadequate. Somewhat ironically, this conclusion is echoed by many of the more vocal critics of British environmental policy. In questioning the general sense of satisfaction of British government officials with their nation’s approach to environmental regulation, they have not contended that environmental regulation is any less effective in Great Britain than in the United States, only that it is equally ineffective.  

Implications

At first glance, this conclusion about the relative effectiveness of British and American environmental regulation is surprising. For, if we compare the actual laws and regulations of the two countries, the controls on industry enacted in the United States are certainly far stricter. While British environmental policy has remained incremental in orientation, the environmental laws adopted by the United States in the late 1960s and early 1970s established extremely ambitious goals. The 1972 amendments to the Clean Water Act required all of the nation’s waters to become “fishable and swimmable” by July 1, 1983; they also established a national goal of zero discharge of pollution into the nation’s waterways by 1985. In addition, the Environmental Protection Agency was required to develop “pollutant-specific effluent standards to be applied to all industrial categories regardless of technological or economic achievability.” This legislation also established a set of strict timetables for the achievement of national emission standards: industrial discharges were required to employ “the best practicable technology” by July 1, 1977, and the “best available technology” by July 1, 1983.  

The Clean Air Act Amendments of 1970 were equally rigorous. The EPA was given 120 days to promulgate national air-quality standards “based on such criteria and allowing an adequate margin of safety [as were] requisite to protect the public health.” In developing these “primary standards” the EPA was explicitly enjoined from taking into consideration the costs of meeting them. The states were then required to submit implementation plans that would enable these standards to be met by 1975. Section 112 required the EPA to regulate particularly hazardous pollutants to zero risk with an “ample margin of safety” regardless of cost. This legislation also established the first “technology-forcing” pollution-control standard: motor vehicles were required to reduce their emissions of hydrocarbons and carbon monoxide by 90 percent within five years and of nitrogen oxides by 90 percent within six years, even though these “targets were acknowledged by all to be beyond the existing technological capabilities of the automobile manufacturers.”  

Severe penalties were established for noncompliance. “Violation of an implementation plan, a new source performance standard, or a hazardous emission standard [was] punishable by a fine of up to $25,000 a day and one year in prison,” while a “violation of EPA’s motor vehicle fuel standards [was] punishable by a fine of up to $10,000 a day.” Violators of the government’s water-pollution standards likewise could be fined “up to $25,000 a day and sentenced to one year in prison.” The EPA was also given the power to issue abatement orders if public health was threatened. And in an attempt to prevent industry from dominating the enforcement process, the Clean Air Act gave private citizens the right to sue the EPA and provided for public hearings before standards could be issued.

British pollution-control statutes, by contrast, contain no deadlines or technology-forcing standards and omit any explicit reference to public health. The British “best practicable means” standard implicitly takes into account the costs of compliance, while its closest American equivalent, “best available technology,” requires the installation of technology most likely to bring about maximum abatement regardless of costs or environmental necessity. Unlike the United States, Britain makes extremely limited use of either emissions or environmental quality standards, and its penalties for noncompliance remain modest. It does not require the holding of hearings before pollution-control standards are issued, nor are its citizens allowed to sue pollution-control authorities. It has also imposed fewer controls on automobile emissions. While the National Environmental Policy Act of 1969 requires detailed environmental impact assessments for all projects supported by the federal government likely to have a significant effect on the environment, the preparation of environmental impact statements has remained optional in Great Britain. Both the Countryside Act (1968) and the Water Act (1979) do require public bodies to take amenity considerations into account when formulating development proposals, but they do not mandate any specific procedures for doing so and compliance is not subject to judicial review. Although development controls are more extensive in Great Britain than in the United States, British policies in regard to land use are in general more flexible: Britain permits the commercial
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development of land in its national parks, while mineral exploration is strictly prohibited in national parks as well as in other conservation areas in the United States.

The Environmental Pesticide Control Act of 1972 required the registration of all 95,000 pesticides then on the market and established strict criteria regarding their potential health hazards. Pesticide use in Britain, by contrast, is subject to a voluntary screening program administered by the chemical industry itself; there are no statutory standards for risk assessment. The Surface Mining Control and Reclamation Act of 1977 established sixteen specific performance standards regarding the restoration of land used for strip mining. In Britain the National Coal Board negotiates separately with each property owner regarding compensation for the use of his or her land, and voluntary agreements have been reached in all but a handful of cases.42

The Enforcement Gap

If American environmental regulations are so much stricter than Britain's, why has the United States not made substantially more progress in improving the quality of its environment? The explanation is a simple one: American environmental laws and regulations have not been uniformly enforced. Enforcement has been relatively strict in some areas, lax in others. Accordingly, if one turns from an examination of each nation's rules and regulations to the way in which these controls have actually been implemented, the significance of the differences in the severity of British and American regulations, while it by no means disappears, diminishes substantially.

While air and water in the United States are undoubtedly cleaner than they would have been in the absence of the laws enacted fifteen years ago, none of the goals embodied in legislation in the early 1970s has actually been achieved, nor is any likely to be in the foreseeable future. The deadline for the strictest and most ambitious standard—for automobile emissions—has been postponed four times, twice by legislation and twice by the EPA. The most recent revision, included in the Clean Air Act Amendments of 1977, gave the automobile industry an additional five years to meet the original hydrocarbon standard and five to seven years to meet the original standard for carbon monoxide emissions. Compliance with the original nitrogen oxide standard was delayed for an additional five years, and the standard itself was relaxed from 0.4 grams of pollutant to 1.0; under certain circumstances it is allowed to exceed 1.5 grams. As a result, by 1977, when new car emissions were originally supposed to be reduced by 90 percent, they had actually been reduced only 67 percent.

Moreover, even those standards that the automobile manufacturers have in fact met do not necessarily translate into an equivalent reduction in emissions. While the 1970 amendments require that vehicles meet federal emission standards for a minimum of 50,000 miles, according to the EPA's own estimates, none in fact does so. For the most recent model years, the average automobile after 50,000 miles of use emitted three times as many hydrocarbons, nearly four times as much carbon monoxide, and twice as much nitrogen oxide as when it left the factory. Even these figures exaggerate compliance, since most cars are generally driven far beyond 50,000 miles. Not only does the effectiveness of catalytic converters—the devices designed to assist in meeting the original emission standards—diminish with use, but a considerable number of automobile owners have tampered with them in order to improve fuel economy and save the additional expense of unleaded gasoline.43

If one turns to the record of industrial performance in the area of air-pollution control, one finds an equally patchy record with respect to compliance. According to a 1976 Senate committee report, six years after the enactment of the 1970 Clean Air Act Amendments, "out of roughly 22,000 major emitting facilities, at least 3,000 either did not comply with emission limitations or did not adhere to compliance schedules."44 As of 1981, 87 percent of the nation's integrated iron and steel facilities, 19 percent of its other iron and steel factories, 21 percent of its petroleum refineries, and 54 percent of its primary smelters had yet to comply with the emissions limits established by state and federal agencies.45 According to the Council on Environmental Quality, approximately 1,700 major pollution sources (those with a potential to emit more than 100 tons of pollutants per year) were not controlled adequately in 1981.46 (Moreover, these figures are based primarily on the companies' own records, which may not always be reliable: according to the EPA, tests of actual emissions account for less than 5 percent of all compliance determinations.) In addition, the sources still exceeding their legal limitations include not just the 8 to 10 percent officially listed as in violation, but the equal number of sources—about 1,200—that are meeting schedules that will not bring them into full compliance for many years.47 The General Accounting Office estimates that almost 25 percent of the sources regarded by the EPA as in final compliance actually are exceeding their emissions limitations.

The EPA has been no more successful in enforcing the even more ambitious goals established by the 1972 Clean Water Act. In 1977 Con-
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gress again amended the Clean Water Act: firms were now given until July 1, 1987, to install the best available technology for nonconventional pollutants. Congress did not, however, alter its original goal of making all lakes and streams in the United States swimmable and fishable by 1983; by that date only half of the nation’s lakes and streams had actually achieved that standard. As of 1981, moreover, 22 percent of major municipal treatment facilities and 15 percent of the nation’s major industrial plants had yet to comply with the terms of the permits they had been issued nearly a decade earlier.

While it is certainly true that the amount of compliance achieved by many industries is greater than their bitter opposition to technology-forcing standards and strict deadlines would have led one to expect, there nonetheless remain real-world limits to the amount of pollution control that industry can achieve within any given period of time. In some cases the technology to reduce emissions below a specified level did not in fact exist, or its adoption—particularly in the case of older facilities—was so expensive as to render a substantial number of plants unprofitable. In principle there was nothing to prevent the American government from establishing rigorous environmental standards, strictly monitoring emitter behavior, and then either imposing heavy financial penalties on firms not in compliance or refusing to issue permits for the construction of new or expanded facilities that would reduce environmental quality. In practice, however, while a strategy of rigorous enforcement is viable in particular cases, it can hardly be applied across the board. There are limits to the amount of economic disruption the citizens of any democratic nation will tolerate: the law ends precisely when the costs of compliance become excessive. 49

Noting the inability of one of the major automobile companies to comply with automobile emission standards in the mid-1970s, Helen Ingram observed: “The federal government has the ultimate weapon—shutting down industry—but its use, like that of the A-bomb, was unthinkable.... The tough talk of the Clean Air Act—imposing heavy monetary penalties for failure to meet the standard—was whistling in the dark when the economic consequences were considered.” 50 In fact, the EPA has never attempted to shut down major facilities that were otherwise economically viable. According to one study, the capital cost of achieving the goal of zero discharge into the nation’s waterways by 1985 would require the allocation of the entire gross national product of the United States for a year; clearly, no agency can be expected to enforce this statute. 51 The Toxic Substance Control Act of 1976 required that industry refrain from employing any chemical substance that posed “an unreasonable risk to health or the environment.” 52 The substances used or manufactured by industry that could potentially fall into this category number in the tens of thousands. Given the considerable time and money necessary to test each one, any effort to enforce this statute effectively would disrupt much of the American economy. In fact, it has hardly been enforced at all. A National Academy of Science study reported in 1984 that less than 2 percent of suspected carcinogens had been sufficiently tested to allow their health hazard to be assessed, while for more than 70 percent “there is no information on possible effects on human health.” 52

Moreover, Congress has repeatedly proved itself responsive to requests for “regulatory relief” from particular industries: over the last decade the automobile industry, the smelting industry, shopping centers, high-sulfur coal producers (all in 1977) and the steel industry (in 1981) have been granted some form of relief from the provisions of the 1970 Clean Air Act Amendments. 53 And while a number of energy projects off the Pacific and Atlantic coasts were delayed or prevented by environmental regulations during the 1970s, in the case of the most important domestic energy project—Alaska oil—Congress, like Parliament, promptly approved legislation that specifically bypassed its own environmental procedures following the Arab oil embargo of 1973. And in 1985 Congress prevented the EPA from imposing a construction ban on states that had not met the Clean Air Act’s deadline for attaining primary air-quality standards.

Part of the enforcement problem has been administrative in nature. During the first half of the 1970s the EPA found itself overwhelmed by the sheer complexity of enforcing the recently enacted Clean Air and Water Act Amendments, let alone its regulations governing noise, drinking water, hazardous wastes, pesticides, and other toxic substances. The EPA was required, for example, to issue permits for more than 60,000 industrial and municipal discharges into the nation’s waterways; four years later it had managed to issue permits for only two-thirds of all industrial discharges. Moreover, many of these permits were issued before the agency had been able to promulgate the effluent limitations required by the 1972 statute and thus were inconsistent with the effluent limitations guidelines that the agency eventually adopted. Thanks to court challenges by industry, it was not until 1977 that the EPA was able to establish an administrative framework for implementing the provisions of the 1972 Water Quality Act requiring all emitters to employ the best practicable technology—by 1977. As of 1980 the EPA had yet to act on 643 proposed changes in state-established controls on existing sources of air pollution. New source performance standards had still not been issued for a number of major air-polluting industries and im-

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portant industrial sources of water pollution had yet to be given effluent guidelines.

Once regulations were issued, the EPA was faced with the challenge of enforcing them. But while the agency devoted considerable time and legal resources to defend its authority to enforce “infeasible regulations,” fearing a political backlash from industry, it made little effort to do so. Instead it began to issue administrative orders that either gave firms additional time to comply or allowed them to “cut a few corners by installing controls of marginal effectiveness.”64 These orders, as one environmental law book put it, represented “a variance mechanism excusing widespread non-compliance.”65 In the United States, as in Britain, newly constructed plants have been required to meet stricter pollution-control requirements than existing facilities. But again, with a few highly publicized exceptions, these regulations have also been interpreted relatively flexibly. According to a study published by the Conservation Foundation, “it is . . . becoming apparent that, although federal laws are essentially uniform as written, techniques of monitoring and calculating pollution impacts—both critical components in the review of environmental permit applications—are subject to a fair amount of finagling and negotiation.”66

Moreover, even when the EPA has tried to demand strict compliance from industry, it has often been unable to achieve it. Indeed, in the case of air pollution, it is precisely the most heavily polluting industries that have been most successful in using both the courts and the Congress to delay installing adequate abatement technology. Approximately twenty-five lead, copper, and zinc smelters located in western states account for one-tenth of the nation’s sulfur dioxide emissions: two of these smelters account for more than one-third of the sulfur dioxide emitted west of the continental divide. Yet fifteen years after the passage of the 1970 Clean Air Act Amendments, most of these facilities had yet to establish compliance schedules that would enable the regions in which they are located to meet national ambient air standards. Approximately one-third of the sulfur dioxide emitted east of the Mississippi comes from coal-burning power plants in three states: Ohio, Indiana, and Illinois. Yet “midwestern utilities have proven nearly as successful in combining litigation with appeals to state governments and Congress as have smelters,” and the EPA has been unable to secure the adoption of enforceable state implementation plans that would restrict sulfur dioxide emissions in the Ohio River Valley.67 According to the Government Accounting Office, in one EPA region only half of the 321 major air polluters not in compliance had ever had any enforcement action taken against them.

There have certainly been cases in which the enforcement of environmental regulations has been stricter in the United States than in Britain. Clearly the American automobile industry has been forced to meet stricter pollution-control requirements than its British counterpart. Oil companies have found it easier to expand their refining capacity in Scotland than on the east coast of the United States. American chemical producers have experienced stricter controls on the manufacture and distribution of toxic substances than firms operating in Britain, and both nuclear and nonnuclear energy projects in the United States have been forced to meet stricter safety standards than those constructed in Britain.

On the whole, though, it does not appear that the balance struck between amenity and economic values has varied significantly in the two countries: the Americans have enacted more rigorous and comprehensive regulations but have experienced much greater difficulty in enforcing them. In spite of the intent of Congress to establish uniform standards, industrial compliance with them has been no less subject to bargaining, negotiation, and compromise than has been the case in Britain.

In sum, the relatively high degree of acceptance of environmental regulation on the part of the British business community cannot be attributed to the “capture” of the former by the latter. On balance, environmental policy has been no more or less influenced by economic considerations in America than in Britain.

The Costs of Compliance

The validity of this conclusion is suggested by data on the costs of pollution control in the two countries. According to figures collected by the Department of Commerce, total pollution-control expenditures averaged slightly more than 1.8 percent of GNP between 1975 and 1980, declining to 1.7 percent of GNP in 1981 and 1.65 percent in 1982.68 In 1981, when the Department of the Environment published its estimates of British pollution-control costs for 1977–78, it reported that total expenditures on all forms of pollution control came to slightly less than £2.5 billion, or between 1.5 and 2 percent of GNP at factor cost. Admittedly this comparison is a crude one. Even if we assume that the bases for calculating pollution-control expenditures are comparable in the two countries, such expenditures represent only a portion of the costs of environmental regulation. They omit, for example, the opportunity costs
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of potentially profitable investments that have been delayed or withdrawn because of environmental controls and the costs associated with the diversion of research and development into compliance with government regulations. On the other hand, they also take no account of the economic benefits from expenditures on environmental improvements, which appear to be both considerable and difficult to measure in both countries.

For our purposes, what is critical is not so much the shares of national resources devoted to environmental protection, which, at least according to the official statistics of the two governments, appear to be roughly equivalent, but rather the extent to which these expenditures have been borne by each nation's business community. Have environmental expenditures in fact imposed a greater economic burden on American than on British business, and might this perhaps explain why environmental regulation has created so much more political conflict between industry and government in the United States?

It is difficult to answer this question satisfactorily. In Great Britain approximately half of the pollution-control expenditures were made by the private sector; in America the comparable figure was two-thirds. Much of this difference, however, might be explained by the larger size of the public sector in Great Britain. On the other hand, pollution-control expenditures by private industry qualify for special tax treatment in the United States—they can be depreciated 100 percent over five years—but not in Great Britain. (This difference may also serve to exaggerate the costs of industrial compliance in the United States.) Corporations in America can also finance expenditures on pollution control by issuing special pollution-control bonds, which carry a lower interest rate than ordinary taxable bonds; most of the steel industry's expenditures on pollution control have been financed in this manner. As a result, a significant share of private-sector expenditures in the United States has actually been financed by taxpayers.

We also have no basis for determining the extent to which a particular industry was able to pass on the costs of compliance to consumers or for measuring the aggregate impact of environmental expenditures on each nation's rate of productivity growth, inflation, employment, and balance of payments. Unfortunately, while we have numerous studies on each of these dimensions for the United States—most of which suggest that the impact of environmental controls on the overall performance of the economy has not been significant—we have none for Britain. Finally, the time frame must be taken into consideration. For while in all likelihood American industry has allocated more resources to environmental protection during the 1970s, were we to compare American and British expenditures over a twenty-five-year period, the magnitude of these differences would probably diminish considerably.

My conclusion, admittedly based on incomplete evidence, is that environmental regulation has not been an important cause of the economic difficulties confronted by either nation over the last decade. Moreover, even if compliance with environmental regulations has imposed a somewhat greater burden on industry in the United States than in Britain, the differences do not appear to be of sufficient magnitude to account for the contrasts in the political responses of industry to environmental regulation in the two countries. They cannot explain why the British business community—which includes both nationalized and privately owned firms—is so much more satisfied with its government's system of environmental controls than its counterpart in the United States. Why are executives in America much more likely to attribute their economic difficulties to environmental regulation than their counterparts in Great Britain? Why, even though, on balance, the enforcement of environmental controls has been no stricter in the United States than in Britain, has environmental regulation created so much more political conflict between business and government in the United States?

Political Implications

While it would be misleading to dismiss entirely the importance of the relative costs of compliance in accounting for the different political responses of business in the United States and Great Britain to environmental regulation over the last fifteen years, their role does not appear to be decisive. Both critics and defenders of environmental policy in the United States have tended to focus on the economics of compliance—the former to document how burdensome the costs have been and the latter to demonstrate their relative unimportance. Both perspectives miss the point: the distinctively adversarial nature of environmental regulation in the United States has less to do with economics than with politics. The system is not an adversarial one because the costs of compliance are so high; rather it is the adversarial nature of American environmental regulation that makes both the direct and indirect costs of compliance appear excessive. It is the way in which environmental policy is made and implemented, not the direct cost of complying with it, that accounts for the resentment it has aroused within the American business community and its relatively high degree of acceptance on the part of business executives in Britain.
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√ Participation

One critical difference in the ways environmental policy is made and enforced in Britain and in the United States has to do with the role of business. In Great Britain, business participation in the making and implementation of environmental policy is both assumed and assured. Compared to that of other political constituencies, most notably that of environmentalists, the political position of business is clearly a privileged one: it is closely consulted before pollution controls are both made and enforced, and developers alone enjoy the automatic right to appeal the decisions of local planning authorities. While business does not always win, its views are always given careful consideration by government officials and its access to policy makers is assured by both law and custom.

In America, on the other hand, while business certainly does not lack opportunities to influence environmental policy, its participation is neither assumed nor assured: it must constantly be asserted. Thanks to the liberalized rules governing access to the federal courts, business enjoys fewer legal privileges not available to environmental groups. And its political resources are certainly far more closely matched by environmental organizations than is true in Great Britain. While the ultimate outcomes of environmental policy in the two societies may not vary substantially, in Great Britain the balancing of economic and environmental considerations is built into the policy process. In America, however, the importance given to economic considerations is in large measure dependent on the lobbying and litigation skills of business.

As a result, American executives have been forced to devote far more political and legal resources to efforts to influence environmental policy than their counterparts in Great Britain. Senior British managers rarely concern themselves with environmental issues. While they frequently consult with government officials, these discussions almost never focus on matters of environmental policy; such matters are discussed at a much lower level, generally by technical personnel in both sectors. In many American industries, however, environmental policy has been a major preoccupation of senior corporate managers over the last fifteen years. Many chief executive officers in the United States have been actively involved in shaping the regulatory strategies of their companies and have on occasion personally lobbied members of Congress and the executive branch. The Business Roundtable, an organization of the chief executive officers of most of the nation’s largest corporations, has devoted a substantial share of its resources to attempting to influence environmental policy, particularly in the area of air pollution.

While both the American and British business communities became much more politically active during the 1970s, only in America can such activities be attributed to the increases in government regulation in general and environmental regulation in particular. In Britain they have represented primarily responses to pressures from trade unions and the growth in the size of the public sector. The major organization of British business, the Confederation of British Industry, has become somewhat more involved in environmental issues since the mid-1960s: a number of senior staff members are responsible for preparing and presenting the position of CBI on proposed environmental policies to officials in Whitehall, and an Environmental and Technological Legislation Committee regularly monitors and attempts to influence private members’ bills that are likely to affect the interests of industry. These matters, however, constitute a relatively minor part of the CBI’s activities. Some individual companies have been forced to play a more active and aggressive role in persuading local planning authorities to grant planning approval, but they are relatively few. While the amount of attention the staffs of British trade associations have devoted to environmental issues has certainly increased, neither the scope nor the nature of their interaction with government has undergone any substantial change.

The contrast with the United States is dramatic. Corporate legal expenses and public and governmental relations budgets have all substantially increased over the last decade, in large measure as a response to environmental regulation. Whereas in Great Britain, lawyers are involved only in local public and parliamentary inquiries, the legalistic nature of American environmental regulation requires the involvement of lawyers at every stage of the regulatory process: they represent companies both in court and in administrative proceedings. And to a far greater extent than in Great Britain, both corporations and trade associations in the United States have committed substantial resources to public relations in an effort to persuade the public of the degree of their commitment to environmental quality and of the merits of their positions on particular issues. The greater complexity of the American regulatory process also has made the administrative costs of compliance substantially greater for firms in the United States.

Expenditures for corporate lobbying have also increased substantially: the number of corporations with offices in Washington increased from 100 in 1968 to more than 500 in 1978. Such trade associations as the American Petroleum Institute, the Lead Industries Association, and the American Motor Vehicles Manufacturing Association have waged lengthy legislative and legal battles challenging particular environmental standards, while numerous new industrial associations, such as the Utilities Air Regulatory Group, the National Economic Development Association,
and the American Industrial Health Council, have been established for the express purpose of influencing environmental policy at the federal level.

Underlying these developments was a more substantial shift in the balance of power between industry and environmental groups in the United States. The political influence of environmental organizations in Britain did increase during the late 1960s and early 1970s, but they challenged rather than threatened the close ties that existed between British industry and government with respect to the making and enforcement of environmental policy. Their influence in Whitehall, while it increased, never approached that of industry, and Britain’s constitutional system limits Parliament’s ability to challenge government decisions. Environmental organizations have no standing in the British judicial system to challenge administrative decisions and the British government has refused to defray any of the expenses they incur in order to present evidence at either local or large public inquiries. Only in the areas of land-use planning and transport policy has the ability of nonindustry constituencies to participate in the policy process notably increased since the late 1960s. On balance, probably the most important and lasting increase in the power of amenity groups in Britain over the last fifteen years has been at the local level, particularly in the more affluent communities in the south of England.

In America the situation has been much different. Industry, which had enjoyed an effective veto power over environmental legislation in the postwar period, began to experience an erosion of its influence in Congress in the late 1960s. By the early 1970s, the environmental movement had emerged as a powerful political lobby. Compared to the political influence of various constituent groups of the public interest movement, that of industry remained relatively stable over the next decade. During the second half of the 1970s, environmental groups were able, with a few exceptions, to resist industry’s efforts to weaken the laws enacted during the early 1970s; indeed, in a number of cases, through judicial intervention, they were able to strengthen them. Environmental activists occupied important policy-making positions in the Carter administration, which held office between 1977 and 1980. Even under the first Reagan administration, the environmental movement was remarkably successful in resisting industry’s efforts to rewrite the nation’s environmental laws and weaken their enforcement. In no other policy area did the administration’s efforts to provide “regulatory relief” to industry meet with such effective opposition, which contributed to the resignation of both the secretary of the interior and a number of senior EPA officials.

The nature of the environmental movement itself also changed more substantially in the United States than in Great Britain. While the membership of environmental organizations increased in both societies, those organizations in Britain that reported the greatest increases in membership—the National Trust and the Royal Society for the Protection of Birds—are only peripherally involved in political activity; they function more as philanthropies and administrative bodies than as pressure groups. (Many people join them because of the benefits they provide, which in the case of the National Trust include a discount on the price of admission to stately homes registered with the Trust.) Environmental organizations in Britain continue to devote a major portion of their energies and resources to assisting civil servants in implementing public policies. Moreover, many of the political efforts of British environmental organizations have been confined to the local level; a disproportionate share of their energies has focused on issues of immediate concern to their members, such as a planning decision or the pollution from a local plant.

The American environmental movement has become much more politicized. For virtually every environmental organization in the United States, influencing public policy has become its most important priority. This is true not only of the newer organizations, such as Friends of the Earth and Environmental Action, but also of older, established ones, such as the Audubon Society and the Sierra Club. The Audubon Society does manage 76 sanctuaries and 90 preserves and the Nature Conservancy has preserved approximately two million acres of land. But such activities take up a much smaller part of environmentalists’ energies in the United States than in Britain. In addition, the American environmental movement has consistently demonstrated greater ability to wage national campaigns. Finally, American environmental organizations employ larger staffs and pay them higher salaries than their counterparts in Britain.

Over the last fifteen years American environmental organizations have acquired extensive rights to information about various public policies, the right to challenge a wide variety of administrative decisions in the courts, and the right to be heard in various administrative proceedings. British environmental organizations, by contrast, possess remarkably few rights. The information they receive from government officials, while it has increased, remains extremely limited: Britain has nothing even remotely resembling the Freedom of Information Act. Unlike American environmental groups, their British counterparts have no right to be consulted by government officials; whether or not they receive consultation papers is up to the discretion of ministers and senior civil servants.
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Only in the case of land-use decisions do British environmental groups enjoy anything resembling administrative due process, and even here the government has limited the standing of organizations not directly affected by particular decisions.

Environmental organizations in both countries have received financial support from their respective governments. In Britain such support has frequently involved either direct grants or the delegation of various governmental functions to nongovernmental bodies. In America it has been more indirect. Under the “private attorney general” concept, plaintiffs in successful court actions can, under certain circumstances, have their court costs as well as other expenses reimbursed. Since 1974, public-interest law firms have been able to sue government agencies and private organizations without forfeiting their tax-exempt status; public-interest groups also can devote a certain portion of their resources to lobbying without losing their tax exemptions. In addition, they are able to solicit contributions and membership dues through the mail at special bulk rates.

What is critical is not the relative magnitude of this assistance in the two countries but its political implications. In America, not only do they provide little incentive for environmental organizations to cooperate with government officials, but they have actually facilitated their ability to challenge both industry and government. In contrast, the direct and indirect financial assistance provided by the British government is contingent on their behaving responsibly; they serve to reduce rather than exacerbate the adversary process. The control of British officials over access and their ability to determine which groups are invited to have their representatives serve on advisory committees or receive consultation letters increase the dependence of environmental organizations on civil servants and ministers. The prominent role played by the courts in American environmental policy has precisely the opposite effect: it enhances their ability to challenge administrative decisions.

The Pace of Change

During the postwar period the scope of environmental regulation increased, its administration became more centralized, and opportunities for public participation were expanded in both countries. But what is striking in the United States is not only the relative magnitude of these changes but also their compression into a relatively short time period: in the space of three years—between 1969 and 1972—the nature and administration of environmental regulation changed more substantially than it did in Great Britain during the preceding quarter century.

While the British central government steadily expanded the scope of environmental regulation in the postwar period, its basic approach to environmental regulation has remained remarkably stable. The authority of the Alkali Inspectorate was substantially increased, but it continued to operate under the statutory framework established by the Alkali, Etc. Works Regulation Act of 1906. (This legislation was formally superseded by the Control of Pollution Act in 1974 but its substance remained unchanged.) The establishment of the regional water authorities in 1972 constituted an important administration reorganization, but it did nothing to alter the way in which government officials went about controlling industrial emissions. Only with respect to smoke emissions did public policy change significantly, but the control of smoke emissions remained, as before, in the hands of local officials: the Clean Air Act (1956) essentially expanded their authority. And in spite of the increased public concern with toxic substances, the control of pesticides has continued to be governed by the system of industry self-regulation established in 1958.

The establishment of the Department of the Environment, for all it signified about the government’s commitment to environmental protection, represented little more than an administrative reorganization: the department was granted neither new authority nor additional regulatory responsibilities. In a sense its title is misleading; only a small portion of its responsibilities have to do with environmental regulation. Its only new component, the Central Unit on Environmental Pollution, was a coordinating body. Equally important, the nature of the staffing of the various British regulatory bodies underwent no change at all: regulations continued to be written and implemented primarily by technically and scientifically trained personnel. Parliament continued to delegate broad regulatory authority to ministers, who in turn left virtually all important decisions to civil servants: parliamentary oversight has remained modest.

The absence of statutory deadlines, a reluctance to prosecute, the emphasis on cooperating with industry rather than coercing it, and a flexible and decentralized approach to the making and enforcement of rules—all have remained consistent features of the British approach to pollution control for nearly a century.

By contrast, the strategy of the American government for controlling pollution changed substantially. The most important shift was associated with the transfer of authority from the states to the federal government. The federal government, for the first time, established both national ambient air standards and uniform emission standards for new plants (new source performance standards). The primary responsibility for controlling water pollution was also transferred from the states to the federal government. In addition, the amount of administrative discretion
was substantially reduced; the laws enacted in the early 1970s not only included specific deadlines but presented agency officials with relatively strict guidelines for both emission standards and new pollution-control technologies—requirements whose enforcement could then be challenged in the courts.

While the federal government's previous controls over water pollution were based primarily on water-quality standards, the 1972 Clean Water Act Amendments abandoned this approach in favor of technologically determined emission standards. The Toxic Substances Control Act both transferred regulatory authority from the Department of Agriculture to the EPA and required the reregistration of all previously approved substances. In addition, the National Environmental Policy Act of 1969 required that every government agency prepare an extensive "environmental impact statement" before approving any new development—a requirement that had never before existed in the United States.

The establishment of the Environmental Protection Agency, unlike that of the Department of the Environment, significantly changed the dynamics of government regulation. Not only did it make it more centralized, but it contributed to a decline in the influence of scientists and engineers in the making and enforcement of regulatory policy. Most of the staffs of administrative units that were merged into the EPA had been primarily technical in their orientation and training. Within the EPA itself, however, under the leadership of its first administrator, William Ruckelshaus, who had previously worked in the Department of Justice, lawyers rapidly assumed a more important role in the nation's pollution-control efforts. Promising to enforce the nation's pollution-control laws vigorously, "Ruckelshaus stressed EPA's enforcement duties as opposed to its research responsibilities." The agency brought five times as many enforcement actions during its first two months as all its predecessor bodies had initiated in any comparable time period. Reviving the long-dormant 1899 Refuse Act, EPA lawyers brought 371 enforcement actions to the Justice Department for prosecution—and sought criminal penalties in 169 of them.

Both the rapidity and the magnitude of these changes clearly created a considerable strain on American business: executives suddenly found themselves forced to adjust to a dramatically changed regulatory environment. Unlike their counterparts in Great Britain, who continued to deal with essentially the same civil servants enforcing the same regulations in much the same manner, American executives were confronted not only with a whole new series of laws and regulations but with a new regulatory bureaucracy whose personnel and procedures they were unfamiliar. While the number of officials responsible for environmental regulation has remained relatively stable in Britain over the last decade, the staffing of environmental regulatory agencies at both state and national levels in the United States increased significantly.

Moreover, the uncertainty created by the dramatic shifts in environmental policy in the late 1960s and early 1970s did not appreciably diminish for the remainder of the decade. On the contrary, no sooner were these laws enacted than a prolonged battle broke out over their interpretation, first within the EPA and subsequently within the federal courts. Within a relatively short period of time, both environmentalists and industry pressed for new legislation. The battle over the amendments to both the Clean Air and Clean Water acts preoccupied industry throughout the greater part of the 1970s; indeed, the Clean Air Act Amendments of 1977 were among the most intensively lobbied laws of the postwar period. Thus important elements of American environmental policy have remained in a continual state of flux; executives have found themselves constantly vulnerable to significant and often abrupt changes in public policy, whether initiated by Congress, the executive branch, or the courts.

Environmental policy has also been much more affected by the electoral process in America than in Great Britain. Enforcement efforts were significantly strengthened following the election of Jimmy Carter in 1976, in part because the administration appointed environmental activists to important policy-making positions. The Clean Air Act Amendments of 1977 measurably tightened controls over stationary source emissions, and in 1980 Congress enacted the Comprehensive Emergency Response, Compensation, and Liability Act (Superfund). British environmental policy was much less affected by the election either of a Labour government in 1974 or of a Conservative government in 1979. Unlike the Reagan administration, which undertook some highly controversial initiatives designed to weaken the enforcement of environmental legislation in the United States, the Thatcher government has not attempted any major change in British environmental policy: on balance it has neither strengthened or weakened controls over industry. It did permit an increase in the weight of heavy lorries and has attempted to expedite the approval of planning applications, but it also moved to phase out the use of lead in petrol and indicated in 1984 that it would strengthen planning controls over agricultural land use.

The Enforcement Gap

Another set of factors has served to exacerbate tension between industry and government in the United States: the enforcement gap itself.
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While the balance struck between economic and amenity values in the United States may not differ significantly from that struck in Great Britain, this is true only in the aggregate. But companies do not live in the aggregate; what concerns them is the way the particular regulations that affect them are enforced. An important consequence of enacting laws that cannot be enforced has been the creation of considerable uncertainty on the part of those who may have to comply with them: individual companies and even entire industries can never be sure if EPA or state officials will decide to enforce the letter of the law in their particular case. Moreover, because enforcement is not—indeed, cannot—be uniform, when it does in fact take place, companies are likely to feel that they have been singled out unfairly: enforcement invariably appears arbitrary. Moreover, companies that have made a good-faith effort to comply with environmental regulations are likely to become resentful of those who have not, particularly when the latter’s lack of compliance reflects not so much their objective economic difficulties as their political clout.

The fact that many American environmental regulations have been written in such a way that they cannot be enforced means that government officials, unlike those in Britain, receive no credit for enforcing them in a flexible manner. They are viewed as having made concessions rather than compromises. While British industrialists attribute their government’s system of flexible enforcement to the “good sense” of their nation’s officials, the American business community tends to attribute the “regulatory relief” granted them by either Congress, regulatory agencies, or the courts as a testimony to their own lobbying and litigation skills. Rather than getting credit for being “reasonable,” the government is blamed for enacting “unrealistic” regulations in the first place. Likewise, the efforts of American industry to require that the government conduct a cost-benefit analysis before issuing new regulations reflect business’s perception that the costs of compliance are not carefully weighed before regulations are promulgated. Their counterparts in Britain have rarely had reason to doubt that regulatory requirements will be tailored to what they can afford to spend. As a result, the economics of enforcement may be similar in both nations, but the political and legal context in which they take place differs markedly.

When regulations have been strictly enforced in the United States, the enforcement has often been done in a manner that appears unreasonable. Studies of environmental regulations published over the last decade contain numerous accounts of companies that were forced to install abatement technologies that had not yet been adequately tested, of fines that were levied for unintentional violations of various regulations, of companies that were forbidden to employ the most cost-effective means of pollution control by the rigid application of particular rules, and of the enforcement of rules that actually reduced environmental quality. The point is not that the strict and literal enforcement of environmental regulations has posed an intolerable burden on American industry; that is clearly not the case. Nor is it relevant that the examples of “unreasonable enforcement” so frequently cited by critics of environmental regulation may not be typical of the way in which environmental regulations are actually enforced; that is also beside the point. What is important is that in the United States, but not in Britain, such incidents have occurred with sufficient frequency to undermine the legitimacy of environmental regulation in the eyes of the companies that have to comply with it.

The Politics of Risk

There is another reason why environmental regulations appear more reasonable to business executives in Britain than in the United States: in Britain they are based on a consensus among scientists and engineers in both business and government. In the area of pesticide regulation, for example,

rather than publicly confronting each other, toxicologists have been enlisted by the British government to generate a consensus and legitimate political decision. In contrast to the conflicts among experts that characterize many American decisions in this field, British decisions emerge from a closed decision-making process with the apparently uncontroversial and authoritative support of science, where U.S. decision-making institutions depend upon and, to some extent, generate conflicts among experts.

While industry and government scientists in the United States have often disagreed bitterly as to whether or not particular substances constitute an appropriate “margin of safety,” in Great Britain such judgments rarely divide officials in the two sectors. In general, while both nations have acted in a roughly similar fashion to regulate products, production processes, and pollutants whose harm to public health has been clearly demonstrated, American regulatory agencies have been far more willing to impose regulations on the basis of inconclusive or fragmentary scientific evidence in order to provide an “adequate margin of safety.” British regulatory policy has tended to confine its attention to known hazards, while American officials have been far more active in seeking to anticipate—and thus avoid—future harms. British regulatory policy
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has been relatively cautious and incremental in its orientation; officials tend to study a problem carefully before making a policy decision. In America, on the other hand, in part because of congressional pressure, officials have made regulations relatively hastily, often before they have had the opportunity to fully assess the scientific evidence on which they were purportedly based.

The characteristic American policy toward risk can be seen in a 1976 Court of Appeals decision upholding the EPA's ambient air standard for lead. The court reasoned:

Petitioners [i.e., the industries] argued that the “will endanger” standard requires a high quantum of factual proof, proof of actual harm rather than of a “significant risk of harm”.... We have considered these arguments with care and find them to be without merit.

... A statute allowing for regulation in the face of danger is, necessarily, a precautionary statute. Regulatory action may be taken before the threatened harm occurs; indeed, the very existence of such precautionary legislation would seem to demand that regulatory action proceed, and, optimally, prevent the perceived threat. ... The statutes and common sense demand regulatory action to prevent harm, even if the regulator is less than certain that harm is otherwise inevitable.71

A British social scientist writes that “Americans seem to have taken an excessively strict interpretation of risk, reducing ‘reasonable risk’ practically to zero risk.” For example,

the primary standard for photochemical oxidants is based on ozone concentrations (itself a questionable surrogate substance) where the ‘zero risk’ level for one hour, once per year is 0.08 p.p.m. (compared with a primary annual standard of 0.565 p.p.m.). ... But, there appears to be no sound scientific evidence that such levels are ‘requisite to protect the public health’ (as defined in the Act). It is quite possible that no unreasonable public health risk occurs with concentrations three times this level, so it is hardly surprising that the U.S. Department of Commerce, backed by American business, is trying to persuade Congress to amend the wording of the Act.72

The Clean Air Act (1956) represented a response—albeit a rather belated one—to the clear dangers to public health produced by the domestic burning of coal. By contrast, the far more stringent controls over automobile emissions enacted by the Clean Air Act Amendments of 1970 were approved without any scientific evidence as to the threats to public health posed by the pollutants whose reductions they mandated.

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While these reductions have undoubtedly improved the health of segments of the population, to date “there have been no efforts at direct measurement of the health improvements or other ultimate benefits that may actually have occurred as a consequence of the mobile source program”; indeed, a 1977 study revealed no correlation between public health and the concentration levels of the three principal pollutants emitted by automobiles.73

An article in Social Studies of Science contrasts the approaches of British and American authorities to the regulation of aldrin and dieldrin, two closely related organic pesticides widely used in agriculture in both countries during the 1960s. Laboratory studies revealed that the pesticides increased the incidence of liver tumors in mice, but did not induce cancer in any other organs of this animal and failed to produce a carcinogenic response in rats, monkeys, or dogs. The British government concluded that there was insufficient evidence that these pesticides caused malignant tumors in humans; the British “expected the traditional requirements of scientific causality to be satisfied before labelling a chemical carcinogenic.” The EPA, on the basis of exactly the same scientific data, banned the pesticides after interpreting the Federal Environmental Pesticide Control Act to hold that “suspension is to be based upon potential or likely injury and need not be based upon demonstrable injury or certainty of future public harm.”74

On several occasions over the last fifteen years the United States government has taken prompt regulatory action only to have the scientific rationale on which it was based subsequently undermined. In 1980, for example, President Carter evacuated 700 families from their homes near Love Canal in New York State on the basis of a study commissioned by the EPA that reported an unusually high incidence of chromosome abnormalities; a subsequent, more thorough study by the Center for Disease Control reported that when the families were compared to a control group, no excess abnormalities were found. While DDT was banned in 1972 because it caused liver tumors in several dozen mice, a subsequent two-year study of DDT in both rats and mice by the National Cancer Institute found “no evidence for the carcinogenicity of DDT in rats and mice.” In the mid-1970s, responding to the arguments of environmentalists that synthetic chemicals in aerosol spray cans were destroying the atmosphere’s protective layer of ozone and thus increasing the likelihood of deaths from skin cancer, the EPA, along with other government regulatory agencies, banned most deodorants and hairsprays. This move forced the alteration of more than 30,000 consumer products. Yet in 1983 the National Academy of Sciences reported that there was “no
discernible change in the ozone level between 1970 and 1980 and that it is possible that other industrial by-products such as car exhausts may even be increasing the ozone level.\textsuperscript{75}

Faced with similar kinds of evidence, the British have acted more cautiously. They have imposed fewer restrictions on the use of DDT, for example. They have tightened standards on TDCD, a toxic dioxin that is a component of the herbicide 2,4,5-T, but have not chosen to ban its use; indeed, officials at the Ministry of Agriculture contend that "the American environmental agency was panicked into its partial ban by a now discredited study in Oregon which linked spontaneous abortions to 2,4,5-T."\textsuperscript{76} Compared to the quality of the report used by the Carter administration to evacuate 700 families from Love Canal, the study of the Independent Advisory Group, \textit{Investigation of the Possible Increased Incidence of Cancer in West Cumbria} (1984), is a model of scientific objectivity. Nor have restrictions on aerosol cans been anywhere near as severe in Britain as in the United States. A CBI working paper notes that while British industry was able to wait until a substitute for "hard" detergents was carefully tested before it was adopted, the Americans banned hard detergents only to find that the substitute was far more harmful.\textsuperscript{77} The contrast in the regulatory styles of the two nations was eloquently summarized by the British journalist Stanley Johnson in 1971:

We saw the American thrashing around from one pollution scare to the next, and we were mildly amused. One moment it was cyclamates, mercury the next, then ozone, lead, cadmium—over there they seemed set on working their way in a random manner through the whole periodic table. Over here, of course, we ordered things differently. We took a careful pragmatic typically British approach. Like good jurists, we preferred to believe in innocence till guilt had been proved. We wanted to look at the evidence. How much lead was in the atmosphere? How much lead, if any, occurred naturally in the atmosphere? What relationship was there between lead in the atmosphere and motor-vehicle exhausts? What was the relationship of lead in the human body to exposure to the atmosphere? What was the evidence, anyway, that lead in the blood-stream was harmful to health? Men had died from time to time and worms had eaten them. But had they died of lead?\textsuperscript{78}

The British have, of course, since moved to ban the use of lead in petrol, and this policy has been the subject of considerable controversy among both scientists and the general public. But unlike the United States, the British government waited until a considerable body of scientific evidence had accumulated: significantly, the immediate factor precipitating the government's change of policy in 1983 was the recommenation of the Royal Commission on Environmental Pollution, whose members included some of Britain's most eminent scientists. The British government has objected strongly to the EEC Commission's efforts to introduce environmental standards on the grounds that "there is not yet a sufficient body of scientific knowledge on the effects of some pollutants to specify desirable concentration levels in a statutory form." In responding to the Community's draft directive on freshwater standards for fish, for example, the National Water Council pointed out that "fish thrive in 90 percent of British rivers, yet only 50 percent of these waters comply with the Commission's mandatory criteria." (Lord Ashby subsequently remarked in the House of Lords: "Let the freshwater fish and shellfish decide what is good for them."	extsuperscript{79})

The point is not that the tighter restrictions imposed by regulatory agencies in the United States have invariably been ill advised. British officials have on occasion doubtless been too cautious in assessing risks and their citizens may have been inadequately protected as a result. If the Americans acted with excessive haste in enacting the 1970 Clean Air Act Amendments, the British certainly moved far too slowly: nearly four years passed between the killer fog of December 1952 and the passage of the Clean Air Act (1956); moreover, the legislation has yet to be fully implemented. Similarly, notwithstanding the conclusions of the Black report, the British may be insisting on an excessively high standard of proof before moving to reduce emissions from the nuclear processing facility in Cumbria. Similar questions can be raised in regard to the government's official response to allegations that the burning of PCBs in chemical plants at Bonnybridge in Scotland and Pontypool in Wales had led to an increase in birth defects. On the other hand, Britain has not always acted more slowly: it did ban the use of EDB as a pesticide in grain storage facilities two years before the United States acted. What is critical is that while scientific assessments on which officials in Britain base their decisions are almost invariably respected and accepted by the industries affected by them, in the United States scientists from industry and government often share widely divergent views about what constitutes a hazard. The fact that important regulations have been issued in the United States on the basis of studies that subsequently have proved invalid has only served to confirm the skepticism of many corporate executives and scientists about the technical and scientific competence of American regulatory officials.\textsuperscript{80}

Not surprisingly, in sharp contrast to the United States, where much of the bargaining over the implementation of environmental policy takes place among lawyers, in Britain such negotiation takes place primarily among technically trained personnel: they interact as experts seeking to
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devise solutions for particular problems rather than as adversaries attempting to maximize compliance and minimize costs. In their study of "regulatory unreasonableness" Eugene Bardach and Robert Kagan cite an instance that illustrates the importance of this dynamic—or its absence:

Environmental engineers from regulated firms in California, however much they complained about costs of compliance, expressed much greater satisfaction with regulations formulated by the Bay Area Air Pollution Control District, which has an ongoing technical advisory committee with representations from business and environmentalists and public health experts, than with regulations of the state Air Resource Control Board, which abolished informal advisory committees. Among other reasons, the state board's regulations were constantly criticized for their technical deficiencies, for being based on inadequate or old data, or on inadequately tested theories and hence ill-adapted to the actual variety and complexity of production processes.

In general policy makers in Britain have relied far more on the technical and scientific expertise and experience of industry than have their counterparts in the United States. For example, while the Alkali Inspectorate waited until the technology associated with scrubbers had become well developed before requiring their installation in new power plants, the EPA required their installation in new smelters and power plants before many of the technical problems associated with their use had been worked out, with resultant frequent breakdowns and considerable resentment on the part of corporate engineers. Bardach and Kagen report a characteristic incident:

The state pollution control agency called upon [a] company to install a certain type of scrubber system. The company's environmental engineer complained, "We argued that a scrubber was impractical. I called TVA [which has extensive pollution-control systems]. They were anti-scrubber because of enormous maintenance and breakdown problems. But the agency people said it could be done. They felt they knew better than us!"

Finally, another important reason why many American pollution-control regulations appear unreasonable is that they frequently have been dictated by considerations other than improvement of environmental quality. In particular, both the regulations designed to prevent significant deterioration and the mandatory scrubbing requirement for coal-burning utilities were motivated in part by a concern to protect the economic and industrial base of the Northeast and discourage companies from relocating to or purchasing raw materials from the Sunbelt. Whatever the merits of these particular policies, companies have been forced to incur substantial additional expenses that contribute only marginally to environmental quality. Great Britain has been no less protective of the interests of its declining industries and depressed regions; indeed, if anything, it has been far more so than the United States. But it has not used environmental policy as a vehicle for achieving this objective.

Expenditures for control of water pollution provide a second illustration of the use of environmental regulations in America as a means for particular firms to gain a competitive advantage. Since all but a small portion of the costs of constructing municipal water-treatment facilities in the United States are financed by the federal government, state and local governments have had little incentive to scrutinize the costs of abatement. As a result, the cost of constructing these facilities was inflated by pressure from construction companies and unions, which regarded the establishment of strict standards of pollution control as a way of increasing their income. Consequently, a share of the nation's investment in water-pollution abatement has produced rather marginal environmental benefits.

Britain, too, has a water-pollution control "industry." Even though it is public rather than private, its managers and workers also have a stake in increasing expenditures on abatement. But because the regional water authorities are meant to be self-financing, their resources are limited. Since they are organized as businesses—albeit nationalized ones—the limits placed on their borrowing give them every incentive to use the limited resources they have available for abatement as efficiently as possible.

It is difficult to judge which nation's system of pollution control is more efficient in an economic sense. There is no question, however, that the inefficiencies of the American system of environmental regulation are more politically salient. While students of British environmental policy have accused both industry and government of devoting too few resources to pollution control and failing to establish strict enough controls over potential or actual health hazards, what they have not done is to challenge the appropriateness of those expenditures that have been required or those regulations that have been enforced; such criticisms of the environmental regulations are almost completely absent from public discussion in Britain. With the exception of some of the reports of the Royal Commission on Environmental Pollution, there have been relatively few proposals to improve the efficiency of British environmental policy. In America, by contrast, proposals for reforming Amer-
ic environmental policy have become virtually as numerous as the regulations themselves. While neither nation has made a serious effort to introduce economic incentives as a means of improving the efficiency of its controls over pollution, only in America has there appeared an extensive literature urging policy makers to adopt such an approach.

Regulatory Complexity

The very nature of American regulations helps explain why environmental policy has produced more conflict between industry and government in the United States than in Britain. The legislative history of the Clean Air Act Amendments of 1977 consists of eight volumes totaling more than 7,500 pages. Christopher Wood writes: “To say that the United States provisions relating to the control of air pollution from stationary sources are arcane would be too generous. They are so labyrinthine that it has been claimed that no one understands fully both the act and the various regulations promulgated to implement it.” In the area of air pollution, for example, the federal government has established both new source performance standards and air-quality standards. Special requirements govern the pollution control technology required of both new plants and the expansion of existing facilities in both “prevention of significant deterioration” (PSD) and nonattainment areas; the latter are particularly complex, requiring both elaborate models to predict the impact of investments on air quality and a system of “offsets.” State implementation plans may contain additional requirements.

An EPA report citing the 175 permits that Standard Oil of Ohio was required to receive before constructing a pipeline between Southern California and Texas—a project ultimately abandoned—notes:

The complex of environment laws that exists today was formed incrementally over time; each new law was passed to address a specific single purpose or need, and subsequent laws were passed to fill in gaps left uncovered by the old. Moreover, organizationally separate agencies and programs also developed incrementally at the local, state and federal levels. As a result of this history, these agencies frequently have overlapping, duplicative or contradictory regulatory authority, as well as inadequate communicative networks.

Another study reports:

The most difficult and costly permitting delays for major new sources occur primarily in the preconstruction approval process for PSD areas. Add to this the requirement to furnish one year’s air quality monitoring data with the application, and the time involved between the submittal of an application and the receipt of a permit usually ranges from 10 to 21 months and the typical delay for the entire permitting process ranges from two to three years. The direct cost of paperwork, monitoring and analysis of air quality has been established at $250,000 to $500,000.

A Brookings study adds: “... industrial critics of the program point to the paperwork, the extensive modeling required to both establish air quality baselines and to project incremental emissions, and the inappropriate and arbitrary nature of the emissions requirements themselves.” More generally, the study notes that “no aspect of the Clean Air Act is more frustrating to industry than the expensive analysis, multiple delays and uncertainties in the permit process for construction or modification of plants.” Moreover, even if a firm has been granted a permit either to construct or to modify a facility, the company has no guarantee that emissions requirements will not be changed in the course of the plant’s life.

The complexity of regulations governing the construction of new facilities in the United States does not simply create additional paperwork for companies and lead to considerable delays and uncertainties; it also undermines the legitimacy of siting decisions once they have been made. Major new projects have been denied approval in various parts of the United States, including a Dow Chemical facility planned for northern California, a Standard Oil of Ohio pipeline planned for the Southeast, and an oil refinery and marine terminal planned for Portsmouth, Virginia, near the mouth of the Chesapeake Bay. What is significant about these controversies is not that planning approval was denied; as we have seen, such denials have also occurred in Great Britain. It is rather that these denials were attributed not to the greater importance officials had decided to place on amenity values but to the complexity and arbitrary nature of the procedures themselves. Siting decisions are more likely to be accepted as legitimate by industry in Britain—even when they go against a particular developer—because they are perceived to have been decided on their merits. In America, on the other hand, substantive issues often tend to be overshadowed by procedural ones.

In addition, because each planning application in Britain is considered on an ad hoc basis, the outcome in any particular case does not necessarily establish a precedent for future public policy. In the United States, however, because the approval of new facilities is in principle governed by the application of a complex set of detailed rules, each denial of a permit is seen as establishing a precedent for future governmental restrictions, thus adding to the tension between regulatory authorities and
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business. This certainly was the case in the permit denials cited above, two of which became national causes célèbres.

The British government has taken considerable pains to avoid the duplication of regulatory functions among governmental units. In the area of air pollution, the division of authority between the Alkali Inspectorate and local public health authorities is clearly defined: "registered" firms and "scheduled" processes are regulated by the former, all others by the latter. In the case of water pollution the situation is even simpler: all emissions are under the jurisdiction of one of ten regional water authorities. While the jurisdictions of governmental units responsible for pollution control and those of local planning authorities overlap, the Department of the Environment has made every effort to keep their respective regulatory responsibilities as distinct as possible.

It is true that on occasion the processing of planning applications has been considerably delayed. During the first half of the 1970s the DOE faced a large backlog of appeals from the decisions of local planning authorities. It was three years before approval was finally granted for the construction of an LNG terminal off the coast of Scotland, and the delays in choosing a site for an additional international airport facility for the London area have been extensive, to say the least. But on the whole, land-use decisions tend to be made relatively rapidly in Britain. In most cases the process of decision making is relatively straightforward, involving usually only two "rounds," one at the local level and another at the national level. (For those applications that have been "called in" there is only one round.) Moreover, the amount of documentation that firms are required to submit to pollution-control authorities before constructing new facilities is only a fraction of that needed in the United States. Great Britain does not require the preparation of environmental impact assessments, and with the exception of the large public inquiries, which rarely involve private companies, the hearing process itself is relatively informal and nonadversarial. British pollution-control requirements are not subject to judicial review, as they are in the United States, are rarely affected by legislative action, and do not require public hearings before they can be promulgated; in addition, inspectors enjoy considerable discretion in negotiating the terms of consents and the establishment of presumptive limits with particular firms. As a result, the regulatory process moves rather expeditiously.

Implications

This analysis helps explain why the American policy of strict enforcement has been no more effective in changing corporate behavior than

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Britain's emphasis on voluntary compliance. The more adversarial mode of regulation adopted by the United States makes voluntary compliance by industry problematic; to the extent that regulations are regarded by the private sector as unreasonable, firms are likely to comply with them only if they are forced to do so. For this reason "considerable effort and resources must be invested in controlling and monitoring activities, as well as in the prosecution and citation of violators, if regulations are to be effectively enforced." Such an effort is not only costly; its effectiveness is also limited. In general, "the practical limits to any further extension of inspections and more strict citations is often reached before the number of violations has been reduced to a minimum and the risk associated with noncompliance has therefore been minimized." Moreover, the greater reliance of American officials on prosecution has not only made enforcement both time-consuming and expensive but also made it more problematic: not all the suits filed by the EPA have been settled or decided in the agency's favor.

On the basis of a comprehensive study comparing controls over sulfur emissions in ten European countries, Peter Knoepfel and Helmut Weidner conclude:

Evidence from the United Kingdom suggests that compared to open systems (such as the United States), countries with closed enforcement processes are more likely to achieve a higher degree of compliance with the license conditions formally stipulated. The close cooperative relationships between the agency and the emitter, which are not disturbed by public participation, may, paradoxically, even lead to environmentally more favorable results in those cases where energy savings for the firm can be realized at the same time. In contrast to more open systems, such decisions, which are often combined with the introduction of complex technologies, can be carried out without great administrative costs.

Certainly there are few firms in Britain whose pollution-control efforts have been as niggardly as those of the western smelters or midwestern utilities. American regulations generally demand more than their British equivalents, but more often than not the result is to make implementation in America more contentious, not to secure a greater improvement in corporate behavior.

The expanded opportunities for public participation in the making and enforcement of environmental regulations in the United States have proved to be a two-edged sword. For at the same time that they have granted environmentalists the right to challenge agency decisions, the courts also have expanded the opportunities available for industry to delay or resist compliance. While environmentalists have been able to
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use litigation to require the EPA to make its regulations stricter, industry has also used the increased willingness of the courts to review administrative decisions as a way of challenging their legality in the first place. As a result, the EPA has found it far more difficult and time-consuming to establish pollution-control requirements for particular industries and processes than its British counterparts. The increase in congressional involvement in the regulatory process has led to a similar result: it has forced the EPA to adopt stricter rules and deadlines, but it has also provided industry with an additional vehicle for delaying their implementation; firms can petition Congress to change or amend the original legislation.

More generally the American experience demonstrates that overregulation can readily lead to underregulation. By requiring the EPA to accomplish so much, Congress has virtually ensured that the agency’s rule-making and enforcement efforts will be inadequate: the price the EPA has paid for its successful effort at strict enforcement in selected policy areas—such as the control of automobile emissions and new source performance requirements—has been the virtual neglect of its regulatory responsibilities in a whole host of other areas. The latter include the regulation of hazardous air pollutants and potentially dangerous chemicals, the control of groundwater contamination, and the cleanup of toxic wastes. (For example, while the Toxic Substance Control Act authorized the EPA to regulate the use of 55,000 potentially hazardous chemicals, by 1980 it had managed to establish rules for only three.) In addition, the effect of statutes that force the EPA to establish strict rules—for example, Section 112 of the Clean Air Act of 1970, which requires the agency to establish standards for hazardous pollutants that protect the public health “with an ample margin of safety, and without regard for costs”—has been to reduce the number of hazardous pollutants that have been controlled at all: because “literal compliance with this criterion might require zero exposure in the case of carcinogens,” by 1981 the EPA had succeeded in establishing standards for only four of the hundreds of potentially hazardous air pollutants.95

Broadly speaking, regulatory officials can choose one of two strategies to influence business behavior: they can pursue a policy of strict enforcement or one based on voluntary compliance. American environmental policy has tried to rely on the former, British environmental policy on the latter. The evidence presented in this chapter suggests that both have led to roughly similar environmental outcomes.96 They have differed significantly, however, in their political implications; the former has produced far more conflict between business and government than the latter.

Chapter Five

Government Regulation in Great Britain and the United States

We are now in a position to appraise the significance of the similarities and the differences to be found in the British and American approaches to environmental regulation. This chapter examines the extent to which environmental regulation constitutes a unique case of government regulation in either society. Can we, in fact, use environmental regulation as a vehicle for generalizing about the legitimacy and effectiveness of government regulation of industry in Great Britain and the United States? Or are the differences we have described rooted in the particular characteristics of this issue?

Environmental regulation certainly exhibits anomalies in both nations. The Alkali Inspectorate, for example, does represent a vestige of Victorian public administration. Not only did it keep the same name for more than a century, but its current statutory authority derives from legislation approved by Parliament before World War I. Few dimensions of British regulatory policy are governed by such carefully defined rules of procedure or provide such extensive opportunity for public participation as does the British system of land-use planning, and few aspects of British regulation of industry have been so contentious over the last two decades.

Environmental regulation also exhibits anomalies within the context of American regulatory policy. No aspect of the wave of “new social” regulation enacted over the last two decades has produced so much political conflict. For more than fifteen years, conflicts over environmental policy have occupied a prominent place on the American political agenda. While the focus of public debate has changed since the late 1960s, the salience of the issue itself has not: the controversy over automobile emis-
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...sions has given way to concern over acid rain, while the urgency of cleaning up the nation's lakes and rivers has been transformed into a concern over the disposal of toxic wastes. In no other area of social regulation have the attempts at "regulatory reform" initiated by the Reagan administration created so much conflict and controversy. And in no other policy area have the changes in the balance of power between industry and nonindustry constituencies been more substantial or proved more durable; the environmental movement entered the 1980s with more political strength than that of any of the public interest groups whose emergence so transformed business-government relations during the late 1960s and early 1970s. Compliance with environmental regulation has been a greater burden on industry than compliance with regulations in any other area; not surprisingly, in no other area of social regulation has the American business community devoted so many resources in an attempt to influence policy outcomes.

These distinctions persist if one turns to the actual dynamics of regulatory policy making. While Congress has come to play a much more important role in the policy process in every area of regulation over the last fifteen years, in no area has it become more involved than that of pollution control. The eight-volume legislative history of the 1977 Clean Air Act Amendments spells out in considerable detail the extent of Congress concerning a wide variety of matters that formerly would have been left to the discretion of agency officials. Similarly, while the federal judiciary has become much more involved in the making of regulatory policy, in no area of government-business relations other than antitrust activities has its role been so important as in environmental regulation. In addition, the EPA's rule-making procedures are more elaborate and legalistic than those of most other regulatory agencies.

The differences between British and American environmental policies may also be due to the unique characteristics of this issue. Thus the greater degree of political conflict over environmental regulation in the United States may simply reflect the greater saliency of amenity issues among the American citizenry. Whether owing to the heritage of citizen activism generated by the civil rights and antiwar movements or the actual magnitude of the nation's environmental problems or a combination of the two, the public certainly became far more preoccupied with government policy in this area in the United States than in Britain. The British public, lacking the experience of 1960s citizen activism and benefiting from the regulations adopted during the 1940s and 1950s, appears to have been less concerned with this particular dimension of business-government relations over the last two decades. The relatively strong performance of the American economy during the second half of the 1960s may have contributed to the raising of public expectations in this policy area, while Britain's persistent balance-of-payment difficulties and slower growth rates may have tempered public expectations and thus made the task of government officials easier. Finally, the greater degree of cooperation between industry and regulatory officials in Britain may in part be due to the fact that a relatively large proportion of the major industrial sources of pollution in Britain are owned by the government. In America, with the notable exception of the Tennessee Valley Authority, they are in the private sector.

In order to evaluate the significance of these factors, this chapter compares British and American regulatory policies and outcomes in three other policy areas: occupational health and safety, consumer protection, and the regulation of financial markets. Its conclusion is that environmental regulation does not constitute a unique case of government regulation in either society: the two nations regulate the impact of business decisions on the environment in much the same manner—and with substantially the same results—as they regulate a wide variety of other dimensions of corporate conduct. Moreover, neither the degree of public concern, the nature of ownership, nor the profitability of particular industries appears to be decisive in explaining either nation's regulatory style. It is rooted rather in the broader dynamics of business-government relations—a subject we shall examine in Chapter 6.

Students of comparative public policy disagree over the extent to which public policy processes and outcomes are due to factors unique to a particular policy area—the so-called policy sector hypothesis—or whether they are a function of the political and social characteristics of the nation in which they are developed—the so-called national differences hypothesis. Gary Freeman writes:

The question can be stated very simply. Which is more important in the study of comparative public policy—the structure of politics in a particular country and the differences in such structures between countries (that is, the nature of the national apparatus for making public policy), or the characteristics of the political issues (the policy arena or sector) with which public policy is attempting to deal? Will countries with dissimilar political systems produce significantly different responses to similar political issues, or will the imperatives of particular types of public problems compel more or less similar responses, whatever the shape of the political system involved?

The evidence presented in this chapter supports the conclusion that the characteristics of a political regime are more important than the nature of the particular policy area itself in explaining policy processes. On the other hand, both the policy agenda and policy outcomes appear to be
more affected by socioeconomic variables. Accordingly, among advanced industrial societies, the former vary much more than the latter.

**Occupational Health and Safety**

The area of regulation that most closely resembles environmental protection is occupational health and safety. As in the case of pollution control, the efforts of the British government to protect the health and safety of workers have a long history. The first factory act was enacted in 1833, and legislation regulating the working conditions of miners was enacted in 1850. Throughout the nineteenth century, a series of amendments to the Factory Regulation Act of 1833 steadily expanded its scope. The original legislation applied only to children, but by the turn of the century, factory legislation had begun to apply to many adults as well. Many factory inspectors, like local public health officials, were not technically trained. The technical qualifications of the Mines Inspectorate, however, did closely resemble those of the Alkali Inspectorate: it consisted—and still consists—of qualified mining engineers with considerable experience in industry.

From the outset the inspectorates responsible for safety at the workplace operated on the assumption that while inspectors might do all they could to see that manufacturers and mine operators complied with the law's technical requirements, the ultimate responsibility for improving the working conditions of employees rested upon the owners and managers themselves. Accordingly, the success of the various inspectorates was to be judged not by their ability to secure compliance with minimum legal requirements but by their success in persuading employers and managers to assume greater responsibility for the physical welfare of their employees. The critical role of industry itself in improving health and safety conditions for employees was repeatedly emphasized in the reports of the Factory Inspectorate. In his 1963 annual report, for example, the chief inspector noted that most industrial accidents were not connected with violations of factory legislation. Rather, they "occur in circumstances which cannot readily be controlled by legislation, for example, lack of attention to good industrial housekeeping and to general tidiness...and above all lack of knowledge and application of safe methods of work."2

While prosecutions for breaches of factory legislation were somewhat more common than those for violations of pollution-control regulations, they were still relatively infrequent: one study of an inspector's files between 1961 and 1965 revealed that although inspectors had uncovered 3,800 contraventions of the factory acts and their regulations, in nearly 75 percent of the cases "the inspector took action by means of a formal notification of matters requiring attention while in less than 4 percent of these cases the inspector took action by means of a formal notice..." Another study reported:

> It is extremely rare for a general inspection not to result in a "discovery"...formal notification of a number of breaches of the law for which criminal proceedings could be instituted. But in the vast majority of cases such matters are not regarded as criminal offenses in any ordinary sense, either by the Inspectorate or by the employees concerned.

In the case of the Mines Inspectorate, a royal commission noted in 1938 that prosecutions, which had averaged thirty-two a year at the beginning of World War I, had fallen to nine a year by the 1930s. Between 1948 and 1975 they ceased altogether.

As in the United States, criticism of the effectiveness of occupational health and safety regulation increased substantially in Britain during the 1960s. While much of it came from individual workers, in both nations a significant source of pressure derived from trade unions. Unions in Britain wanted not only to increase the opportunities for workers in the administration of safety procedures at the plant level but also to strengthen the enforcement efforts of the Inspectorate. Because the Inspectorate continued to insist that the primary responsibility for providing a safe workplace rested with management, the unions suspected that too little attention was being paid to the views and needs of employees. Moreover, the activities of the Factory Inspectorate came under increased scrutiny as part of the public's heightened interest in environmental regulation, since the public's interest in its safety and that of a firm's employees in their own were identical.

In Britain, as in the United States, public concern was also heightened by a number of highly publicized instances in which the government's regulatory body appeared to have been negligent in protecting the health and safety of British workers. Her Majesty's Factory Inspectorate was criticized, for example, for failure to protect the workers exposed to asbestos at the Bermondsey Factory of Central Asbestos and to control the lead pollution produced by the RTZ smelter at Avonmouth. Both works were eventually closed—but not before many of their employees had been injured.3

Immediately before the general election of 1970, the secretary of state for employment and productivity appointed a committee under the chairmanship of Lord Robens to reexamine the entire question of safety
and health in the workplace. Its mandate was extremely broad: it was not only to examine the entire question of safety and health at the workplace but to consider what was needed to protect the public from hazards arising from industrial production. The Robens Committee released its report in 1972. Its main conclusion was that the existing system of regulation relied too much on specific rules and regulations. It urged a more flexible statutory system that would encourage greater "personal responsibility and voluntary self-generating effort." The committee also recommended that a new authority be established with exclusive responsibility for health and safety at work and that the six existing regulatory bodies concerned with this function be merged into a single unified inspectorate.

While explicitly rejecting the argument that what was most needed was a strengthening of the police powers of the Factory Inspectorate and greater willingness to prosecute employers, the Robens report did propose strengthening the administrative sanctions available to inspectors. Its primary recommendation, however, was that strict legal enforcement be deemphasized and that the role of inspectors as advisers to both employees and industry be strengthened. This position more closely reflected the preferences of the Confederation of British Industry than it did that of the Trades Union Congress. The latter recognized the importance of self-regulation but did not regard it as an alternative to stricter enforcement of safety legislation.

After considerable interdepartmental conflict—much of which centered on the extent to which each of the previously independent inspectorates should become part of one organization—the government proposed the Health and Safety at Work Act of 1974. (Some of the strongest objections came from the Royal Commission on Environmental Pollution, which unsuccessfully opposed the removal of the Alkali Inspectorate from the Department of the Environment to this new regulatory body.) A governmental spokesman for the legislation did concede that "there was anxiety and apprehension about the general philosophy of the report," which seemed to call for a retreat from strictly enforced statutory requirements. However, the legislation submitted to and approved by Parliament accepted the report’s main recommendations.

The 1974 legislation established two new bodies: a Health and Safety Commission (HSC), to be composed of nine members appointed by the secretary of state for employment after consultation with representatives of employees, employers, local government, and various professional associations, and a Health and Safety Executive (HSE), which was to be responsible for administering the policies made by the commission. The latter’s responsibilities included information and advisory services, research, and inspection. The HSE was also responsible for establishing special working bodies, comprised of members drawn from the various bodies represented on the HSE, which would develop guides and codes of practice for particular occupational hazards. The new law also extended protection to the self-employed and provided for the protection of the general public from hazards to their health and safety from industrial activities. The latter provision involved factory inspectors for the first time in environmental regulation.

The contrast between the Health and Safety at Work Act (HSWA) and the Occupational Safety and Health Act (OSHA), signed into law by President Nixon on December 19, 1970, is marked. While both laws were enacted in response to considerable public and union dissatisfaction with existing regulatory arrangements, the American legislation was enacted after an extremely bitter legislative struggle. The unions originally supported a bill that would have given the secretary of labor the power to set and enforce standards as well as the right to shut down plants where an “imminent danger” was found to exist. After considerable opposition from Republican legislators and business lobbyists, a compromise was reached. The final version of the bill placed the power to set standards and review violations in a separate body, the Occupational Safety and Health Administration (also known as OSHA), which was placed under the jurisdiction of the Department of Labor. More important, while the British statute essentially reinforced existing trends in British regulatory practice—its primary innovation was organizational—its American counterpart represented a radical policy departure in two significant respects. Like the National Environmental Policy Act of 1969, the Clean Air Act Amendments of 1970, and the Clean Water Act Amendments of 1972, the Occupational Safety and Health Act transferred the primary responsibility for the making and enforcement of regulations from the states to the federal government: states could continue to administer their own regulations, but only if they were at least as stringent as those promulgated by OSHA. Second, it reflected a shift to a more adversarial and rule-oriented approach to policy making and enforcement.

The two nations’ regulatory strategies thus differ substantially. The British have moved in the direction of increasing the responsibility of private parties for designing and maintaining safe conditions at work. Thus the HSWA contains a series of “general duty” clauses that define the respective obligations of employer, self-employed persons, managers, and employees to ensure safety and reduce health risks in the workplace. Consistent with the recommendations of the Robens Committee, over the last decade the Factory Inspectorate has found itself increasingly drawn into “develop[ing] new techniques for monitoring
what the employer does, appraising safety organizations rather than simply seeing that employees conform to specific rules. In addition, the 1974 legislation formally institutionalized a tripartite system that enables worker representatives as well as employers to participate in the development of standards and codes of conduct. In fact, the HSC routinely ratifies the standards approved by labor and management negotiators—each of whom has the power of veto.

The American statute, by contrast, placed the authority to promulgate occupational safety and health standards exclusively in the hands of the Department of Labor—though subject to the formal procedures of administrative rule making. By turning over the task of establishing standards to the representatives of the interest groups directly affected by them, the British system reduced the direct role of government in the regulatory process; by establishing a new agency responsible for promulgating workplace health and safety standards, the American approach increased it. While the HSWA "reflects well-known features of British regulatory policy in favoring a decentralized, flexible development of rules, which apply ordinarily to specific employers rather than entire industries," the OSHA "calls for rules to be promulgated by a central government agency to be uniformly applicable to whole classes of employers." And while OSHA has severely restricted the autonomy of its field inspectors, encouraging them to "go by the book," the British system continues to provide inspectors with substantial discretion.

The Occupational Safety and Health Act encouraged penalties both by allowing fines to be imposed through a "civil penalties" procedure that required a relatively low standard of proof and by requiring inspectors to cite employers for every breach of a regulation that they observed (whether or not it actually threatened workers' health or safety). British regulators, now as in the past, rely more on conciliation than on coercion to achieve policy objectives and employ legal action only as a last resort when persuasion proves inadequate. In 1980, 140,000 fines were imposed on coal-mining companies for health and safety violations in the United States, while in Britain there have been no prosecutions for more than two decades. Although the number of prosecutions by the Factory Inspectorate has increased since 1974, British inspectors continue to "prefer advice and persuasion to the big stick of the criminal law." As the 1979–80 Annual Report of the HSE put it: "In raising the level of workplace health and safety awareness, and encouraging a more positive approach to combating hazards, we have proceeded... on a basis of agreement." Charles D. Drake and Frank B. Wright add:

This consensual approach operates at the national level using consultation on regulations and codes of practice and relying on the advice of advisory committees and at the plant level by consulting safety representatives and safety committees. The new summary powers to issue improvement and prohibition notices backed up by the ultimate discretion to prosecute are seen as reserve powers to coerce the recalcitrant.

By contrast, Steven Kelman writes:

Perhaps the best single word to describe the American enforcement process, in its various aspects, is informal. OSHA lays out inspection procedures in great detail. Inspections take the form of searches for violations. They result in formal citations (and penalties) for specific regulatory infractions. These citations are frequently formally contested by employers. If contested, OSHA must formally prove, in a court setting, that the violations did in fact occur. The process of enforcing the rules thus itself goes according to well-defined rules.

The two nations also differ in their approaches to the weighing of costs and benefits in the setting of standards. The British legislation mandates that workers should be protected "so far as is reasonably practicable"—a phrase that represents the rough equivalent to the criterion of "best practicable means" employed by the Alkali Inspectorate in establishing emission requirements. As in the area of pollution control, inspectors, acting within the guidelines established by the working parties established by the HSE, are responsible for balancing what is appropriate on safety grounds against the degree of risk and the cost of prevention. The British system of regulatory decision making obviates the need for a formal system of cost-benefit analysis. Sheila Jasanoff notes:

Accustomed to negotiating with each other, neither labor nor industry requires the other's demands to be spelled out in monetary terms, and the possibility of bargaining on policy outcomes removes the need for explicit principles of decision. Because government ratifies agreements among the relevant private interests, rather than making choices of its own, there is little reason for regulators to justify policy decisions through economic or other technical arguments. The consultative documents on major regulatory policies often include some discussion of costs and benefits. But the analysis is more qualitative than quantitative, neither pretending to excessive methodological rigor nor serving to justify a particular policy choice.

In the United States, on the other hand, the use of cost-benefit analysis in the making of regulatory decisions has been the subject of considerable controversy. The statute itself is ambiguous: one section appears to en-
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courage the weighing of costs and benefits in formulating specific regulations while another appears to prohibit it. In the one Supreme Court decision that has addressed this issue, the "cotton-dust" case (American Textile Manufacturers Institute v. Donovan) the Court held that the phrase "the extent feasible" in section 6(b)(5) superseded the "reasonable" requirements of section 5(8). The majority argued that "feasible" meant "capable of being done," and that if Congress had wanted costs to be taken into consideration when standards were formulated, it would have so said in the statute. Whether or not the Court's decision applies solely to those regulations promulgated under rule 6(b)(5) or to all OSHA regulations remains unclear. In the early 1980s, British officials did become more concerned about the cost-effectiveness of particular regulations, and the HSE hired its first economist. But the use of cost-benefit analysis remains far less contentious in Britain than in the United States. Whereas American regulatory officials have come under substantial pressure to establish standards that "guarantee" a safe workplace, the British public appears to accept a certain amount of occupational injury as a necessary concomitant of industrial production.

Vinyl Chloride

The contrasts in the British and American approaches to protecting health and safety in the workplace emerge with particular clarity in the two nations' approaches to the regulation of vinyl chloride (VC), a chemical that is the cornerstone of the plastics industry in both the United States and Western Europe. In January 1974 B. F. Goodrich announced the deaths of three of its workers who had been exposed to vinyl chloride and formally informed the National Institute of Occupational Safety and Health (NIOSH), OSHA's research arm, that VC appeared to be linked to cancer in humans. Within a relatively short time, Goodrich's finding had become available to government officials, corporate managers, and trade unionists in both Western Europe and Japan. The issue received considerable international media attention and both government and industry throughout the industrialized world found themselves subjected to substantial public pressure to reduce the exposure of workers to what was clearly an extremely hazardous substance.

The first country to act was the United States. On January 30, 1974, OSHA announced in the Federal Register a fact-finding hearing on VC to be held the next month. The purpose of the hearing was to determine if OSHA should issue an emergency temporary standard (ETS) immediately to protect workers from "grave danger" or if it should follow its regular rule-making procedures. Industrial spokesmen vigorously argued against an ETS, contending that they had already reduced average exposure to below 50 parts per million (ppm), a level at which no threat to human health had been demonstrated. Union officials, on the other hand, insisted that VC was clearly a human carcinogen and that the government should immediately require companies to eliminate all worker exposure. On April 5 OSHA issued an ETS that specified that no worker could be exposed to more than 50 ppm. A month later OSHA issued its "Proposed Standard for VC," which proposed that VC exposures be set at the "non-detectable level, as determined by a sampling and analytical method capable of detecting VC at concentration levels of one ppm." Companies had to comply "as soon as feasible." This regulation fell, in the words of one industry official, like a "bombshell." One executive noted: "The standard made a lot of people in the industry furious. I mean mad enough to start fist fights. People said, 'They can't do that to us— we're running a clean operation.' When further OSHA announcements came out, the attitude was, 'Did you see what those bastards did to us today'" The trade association that represents most major plastics producers in the United States convened a series of special meetings to plan its political and legal strategies. After considerable intra-industry conflict, the producers decided to recommend an average exposure level of 25 ppm, to be effective in October 1974, and a level of 10 ppm to take effect two years later. Industry officials publicly attacked OSHA's proposed standard, calling it "impractical," "unachievable," and "a disaster for industry." Union officials counter-attacked: an official of the Oil, Chemical and Atomic Workers Union stated that "workers are tired of being used as guinea pigs." The president of the United Rubber Workers sent a message to President Nixon, urging that the government "stop the cruel and unnecessary killing of our workforce." In June and July, OSHA held a total of eight days of hearings. The official record exceeded 4,000 pages and included more than 800 oral and written submissions. While industry representatives contended that recent deaths were due to the very high levels of exposure that had prevailed in the industry ten or twenty years earlier, cancer specialists from NIOSH and the National Cancer Institute testified that no threshold level had been established for human carcinogens. Industry officials claimed that OSHA's standards were not economically feasible, while various union officials and representatives of public interest organizations disputed this claim. In October 1974 OSHA published its final standard: it set "an exposure limit of 1 ppm average over any eight-hour period and a ceiling of 5 ppm average over any period not exceeding five
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minutes. While labor’s response was lukewarm, within two minutes of OSHA’s announcement seven firms had filed suits in various federal courts
challenging OSHA’s ruling. These appeals were unsuccessful and the in-
dustry then set about seeking to comply. Within two years most firms
were in compliance; the total costs to industry were estimated at between
$200 and $280 million. As this cost was substantially less than had been
predicted, critics accused the firms of having cried wolf.

The chief inspector of factories in Great Britain was informed of B.
F. Goodrich’s announcement almost immediately after it was made. Within
a week, Imperial Chemical Industries (ICI), the major British chemical
firm, had furnished the government, officials of the Trades Union Coun-
cil (TUC), and its own employees all the information on VC it had
available. Following a series of meetings among industry scientists, the
TUC’s medical adviser, and the senior government officials responsible
for occupational health, the two major British chemical producers, Brit-
ish Petroleum Chemicals and ICI, voluntarily agreed on an initial ob-
jective of reducing VC levels to below 50 ppm. A few months later the
Chemical Industry Association established a special VC Committee to
coordinate the technical research efforts of the industry and to work
with the VC working group of the HSC. (In fact, the membership of
these groups overlapped.)

In the spring of 1974, the Factory Inspectorate, seeking to comply in
advance with the provisions of the Health and Safety at Work Act—
which was then in its final stages of parliamentary approval—invited
industry and labor to form a joint working group to develop an industry
code of practice. The group, chaired by the chief inspector of factories,
consisted of five labor representatives and an equal number from indus-
try; its staff included a medical statistician, the deputy chief of the
Alkali Inspectorate, and representatives of the Department of Health
and Social Services. All of its meetings were held in private, and while
its members kept their constituencies informed of its work, contacts with
the press were extremely limited. In December the committee approved
a draft code of practice, which established an “interim hygiene standard,”
defined as

a ceiling value of 50 parts per million, that must not be exceeded; the
average exposure over the whole shift must not exceed 25 parts per million.
These are outside limits and it is further asked that exposure should be
brought as near as practicable to zero. This standard, which was to be kept
under review by the Working Group, therefore encourages progressive
reductions of exposure to the lowest possible levels given present engi-
neering knowledge.17

Regulation in Great Britain and the United States

Members of the committee subsequently made a series of visits to VC
plants in order to discuss the hazard informally with workers and ex-
amine the monitoring and control technology available to industry. These
visits served the additional purpose of developing close personal relations
among the members of the group. An official of the Transport and
General Workers Union noted that while initially both industrialists and
labor representatives viewed each other with suspicion, after observing
industry efforts to control VC, the participants achieved “a real break-
through in relations” and got along “famously”; industry members in
turn described their trade union counterparts as “level-headed and re-
sponsible men.”

In May 1976 the group approved a final code of practice. It established
a “ceiling value of 30 ppm in a time weighted average of 10 ppm,” with
the understanding that “whenever practicable exposure should be brought
as near as possible to zero concentrations.”18 This code had no legal
status: it was simply a voluntary agreement. Even before it was an-
nounced, however, average weekly VC levels in British plants had been
reduced to somewhere below 5 ppm, and by 1977, plants in Great Britain
were maintaining levels between 0.5 and 2.0 ppm. The capital costs of
compliance for British industry as a whole were estimated at more than
£20 million.

Thus, while the exposure level of workers in the United States may
have declined somewhat more rapidly, within three years VC exposure
levels were virtually identical in the United States and Great Britain.
The ways in which this objective was achieved, however, differed dra-
matically. The United States established a strict, technology-forcing
standard that left no room for variation among producing firms in con-
trolling VC exposure levels; all had to comply with uniform require-
ments as soon as possible. The British, on the other hand, deliberately set
the standard above the lowest level possible with available technology, and
companies were able to calculate costs and benefits individually. They
could decide on a plant-by-plant basis whether further reductions in
exposure made good economic sense. As a result, while the effective
exposure levels tended to be relatively similar among all plants in the
United States, exposure levels in Britain tended to be higher in some
plants than in others.

EVALUATING HEALTH AND SAFETY REGULATION

As in the case of environmental regulation, Britain’s efforts in the area
of occupational health and safety have become more controversial over
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the last decade. The inability of government and industry to provide adequate protection to workers exposed to asbestos, for example, has been persistently criticized. The first British regulations on occupational exposure to asbestos dust were issued in 1933. In 1968, responding to research by the British Occupational Hygiene Society, the maximum occupational exposure was reduced to 2 million fibers per cubic meter. This standard was attacked as "grossly inadequate," however, and in 1982 the Health and Safety Commission acted to reduce it by half. The asbestos industry, which was already operating at the 1-fiber standard level, vigorously opposed the government's efforts to reduce it to 0.5 fiber. It spent £500,000 on a public relations campaign designed to "influence reports, legislation and government regulations on new safety standards." A report issued by the British Society for Social Responsibility in Science countered by predicting that 500,000 workers might die from asbestos-related diseases over the next thirty years.

In the late 1970s the National Union of Agricultural and Allied Workers challenged the government's unwillingness to ban the use of the pesticide 2,4,5-T, "claiming that a terrifying trend of abortions, miscarriages, and infant deformities in the families of agricultural workers can be related to [its] use." The government, however, agreed only to restrict its use. A resolution passed at the 1980 TUC Annual Conference termed the voluntary registration scheme a failure and urged that the control of pesticides be removed from the Advisory Committee on Pesticides and placed in the hands of the HSC.

In 1982 W. G. Carson published The Other Price of Britain's Oil, which sharply criticized the safety standards being applied to workers on oil-drilling equipment in the North Sea. While acknowledging that the accident rate from the British sector of the North Sea was lower than that for the Norwegian sector, Carson contended that a significant number of accidents to British workers could easily have been avoided had safety considerations been accorded a higher priority by both the Department of Energy and the oil industry.

In comparison with the turmoil generated by health and safety legislation in the United States, however, the controversy in Britain has been relatively modest. In the United States, dissatisfaction with occupational health and safety regulation has been pervasive in the ranks of both labor and industry; indeed, no other regulatory agency has been so universally unpopular as OSHA. Industry has accused it of being obsessed with enforcing detailed rules that often bear no relationship to actual hazards, overeager to prosecute, indifferent to the costs of compliance, and contemptuous of industry expense and expertise; indeed, critics of OSHA have argued that in spite of its zealousness, it has actually done nothing to improve occupational safety. Trade unions, on the other hand, have accused OSHA of being far too lax in both setting and enforcing standards.

As in the case of pollution controls, measuring the impact of regulation on health and safety at the workplace is extremely difficult. Workers' health and safety are affected much more by their ages, their turnover rates, and the type of production than by government regulation. On balance, the British appear to have been slightly more effective in reducing employee injuries. Between 1974 and 1980 the incidence rate of fatal injuries in Great Britain fell between 4.5 per 100,000 workers at risk to 2.7 (from 16.0 to 19.0 in construction). The incidence rate of reportable accidents per 100,000 workers at risk fell from 3,570 in 1976 to 2,860 in 1980 (from 3,410 to 3,000 in construction). On the other hand, the consensus of those who have analyzed the data is that during OSHA's first decade the agency had a negligible effect on the occupational injury rate in the United States, though since 1980 the rate has fallen.

While the Mine Safety Program did bring about a significant decline in coal mine fatalities in the United States, the American fatality rate per mine-worker-hour is currently three times higher than the British.

Regulatory officials in both societies have placed less emphasis on the more difficult challenge of protecting the health of workers, but the efforts they have made have been roughly comparable. While the two nations currently have comparable standards for workplace exposure, British authorities identified asbestos as a hazard thirty years before the danger was recognized in the United States: it was not until 1964 that the American asbestos industry agreed to place labels on its products. The British also adopted a standard of 2 million fibers per cubic meter for workplace exposure four years earlier than did the United States. On the other hand, American officials have placed greater restrictions on the use of pesticides, thus providing more protection to agricultural workers. Because the resources available for scientific research on new workplace hazards are much greater in the United States, American authorities now appear to be in a better position to identify new sources of occupational disease at the workplace, although, as we have seen in regard to vinyl chloride, the results of such research are readily made available to regulatory authorities in Britain. Since, however, fatalities due to exposure to sources of occupational illness may not appear for many years, it may be some time before we can fully access the relative effectiveness of British and American regulatory efforts in this area. (As things now stand, the much more important role played by private law-
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suits in the area of occupational illness in the United States may, in the long run, have a greater deterrent effect on corporate conduct than either nation's formal system of regulation.

As in the case of environmental protection, one reason that the stricter American occupational safety and health standards have not brought about a more rapid reduction in accident and disease rates has been the difficulties the government has faced in implementing them. Largely because of industry opposition, OSHA was able to issue only four major health standards during its first six years. While the number of both health and safety standards issued increased somewhat between 1977 and 1980, so did industry resistance to their enforcement: in 1980, approximately 25 percent of all violations were contested by industry. Graham Wilson argues that OSHA might have been able to issue regulations more speedily if it adopted an approach less likely to provoke opposition from industry. He asks:

Might not a slightly less than perfect regulation which industry might accept be preferable to a perfect regulation which, like OSHA's benzene regulation, was invalidated after five years work, leaving the agency with nothing? As is often the case, a decent argument can be made for accepting compromise rather than defeat.4

These comparisons of British and American practices and policies in regard to the protection of workers from disease and injury are particularly significant because the political and organizational contexts of environmental protection and occupational health and safety policy differ so substantially in the two countries. The American public, on the whole, appears to have been more preoccupied with environmental regulation than the British. In addition, in comparison with their counterparts in the United States, British environmental organizations have fewer legal and organizational resources with which to participate in the policy process, particularly in areas that are highly technical.

These contrasts are much less striking in the area of occupational health and safety. Unlike British environmental organizations, the British trade union movement is relatively well staffed and funded. Not only is a far larger proportion of industrial workers unionized in Britain than in the United States, but those workers enjoy considerably more access to the regulatory process. While American trade unions function primarily as litigators and lobbyists, British union officials fully participate in the actual making of the occupational health and safety regulations that fall under the jurisdiction of the HSE. Yet despite these differences, both the contrasts and the similarities we have observed in the environ-

mental regulations of the two countries can also be found in the area of occupational health and safety regulation. And as both the vinyl chloride case and our comparative accident data suggest, the more cooperative British approach to compliance has proved at least as effective as the more adversarial enforcement strategy adopted by officials in the United States, if not more so. It has, however, produced far less political conflict between industry and government.

Chemical Regulation

These differences in occupational health and safety regulation in Great Britain and the United States extend to the more general area of health and safety regulation. An exhaustive study of chemical regulation and cancer in the United States, Great Britain, France, and the Federal Republic of Germany concludes that in virtually every case, U.S. standards tend to be relatively specific and detailed, while British rules tend to be much more flexible and informal. Thus while the United States makes extensive use of specific tolerance standards, "with equal regularity Britain avoids obligatory, legally enforceable controls of any type, except in the case of food additives and a few other specialized instances" (some of which were designed to conform with EEC directives).5 And when the British do prescribe exposure limits, they generally take the form of recommendations rather than requirements.

In the view of British public authorities, their non-statutory approach to the control of pesticides and workplace chemical hazards succeeds because of a high degree of compliance with voluntary standards on the part of industry. In the United States, in contrast, it is traditionally assumed that the behavior of those regulated requires close scrutiny under threat of punitive sanctions.6

Not surprisingly, British industry has generally been quite satisfied with its government's approach to the regulation of chemicals. By assessing and controlling chemical hazards substance by substance and by tailoring test requirements to specific chemicals, industry avoids the need for unnecessary and costly testing of new substances—frequently cited as a major bar to innovation in the United States. In contrast to the United States, which has devised highly specific regulations governing substances suspected of causing cancer—the most well known is the Delaney Amendment, which requires the Food and Drug Administration (FDA) to ban any food additive suspected of causing cancer—Britain
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has tended to subsume the regulation of carcinogens within its existing regulatory framework. And whereas American regulatory officials have on occasion banned particular substances or proposed drastic reductions in their use, the British prefer to cut back production gradually and to introduce restrictions on use. A comprehensive cross-national study of chemical regulation concludes:

Managers of individual firms and officials at the Chemical Industries Association, the industry’s trade association, enjoy close, even cozy relations with civil servants at the ... Health and Safety Executive and the Department of the Environment. Informality is the way of doing business in Britain, founded on a spirit of trust between industry and government that permits the tackling of tough policy problems without public battles.

In sum, as one industry spokesman put it, if British chemicals must abide some form of government intervention for regulatory purposes, they could hardly design something superior to the existing approach.27

When the British system for the control of hazardous substances is understood in its broadest terms, the tripartite arrangement for controlling exposure to toxic substances in the workplace established under the auspices of the HSE is seen to be highly unusual. Two British scholars have surveyed the nature of the advisory bodies established to make decisions with respect to the regulation of dangerous chemicals in the workplace and in other policy areas: foods and food additives, medicines, pesticides, tobacco, consumer products. In every case but the first, the governmental body charged with formulating regulatory policy consists exclusively of “technically trained individuals who are selected not as representatives of any particular economic interest or political viewpoint but rather as independent experts who are able to evaluate the scientific evidence.” Moreover, none of the bodies publishes transcripts of its deliberations or publicizes its agenda or minutes, and “each advisory body enjoys a high degree of discretion in selecting the form of recommendations which it deems suitable to specific circumstances.”28

While some bodies, such as the Food Additives and Contaminants Committee, tend to follow relatively rigid guidelines, in general “standards are [not] rigidly enforced but are weighed against economic, industrial, or geographic conditions.” Each advisory body tends to make a relatively sharp distinction between “insiders,” who are able to participate fully in its deliberations, and “outsiders,” members of the general public, whose access to the policy process is virtually nonexistent. Government officials justify this arrangement on the grounds that “it encourages ... informal co-ordination and flexibility of approach in a manner which a more open and adversarial system (such as that found in the

Regulation in Great Britain and the United States

United States) would not be able to achieve.”29 In this sense, the distinction between the decision-making procedures of these bodies and that of the Health and Safety Executive is roughly analogous to that between the Alkali Inspectorate and the British system of land-use planning.

Do the advantages that industry enjoys because of its close ties to the scientific community and the limited ability of nonindustry interests to challenge regulatory policies publicly expose British workers and consumers to unnecessary hazards? Certainly “the fortunes of the chemical industry are more favorably balanced against the need to protect health and the environment in Britain than elsewhere.” Yet at the same time, when one turns from the way in which policy is made and implemented to specific policy outcomes, one finds that British and American regulatory policies are remarkably similar. Thus the use of all fourteen substances identified as carcinogenic by the highly respected International Agency for Research on Cancer has been restricted by regulatory authorities in both countries; in most cases these restrictions are identical. Despite the initiative shown by American regulatory officials and the stricter requirements of American law, the United States “has regulated few suspected carcinogens that do not also appear on the lists of controlled substances in Europe.”30 While the United States has moved somewhat more aggressively to restrict the use of food additives and some pesticides, the British have tended to place tighter controls on occupational carcinogens.

Drug Regulation

The dimension of British health and safety regulation that has attracted the greatest interest in the United States is that of prescription drugs. The inspection of the quality of medicinal products in England dates from the reign of Henry VIII. In 1858 Parliament established quality-control standards for medicines and in 1875 legislation was enacted fixing penalties for the adulteration of drugs. The Therapeutic Substances Act (1925) provided for the licensing of medicines and established standards for the manufacture or import of substances “the purity or potency of which cannot be adequately tested by chemical means.”31 Following the thalidomide disaster in 1963, a Committee on Safety of Drugs (CSD) was established by the Ministry of Health after consultation with both the medical and pharmaceutical professions and the pharmaceutical industry. The committee established a voluntary regulation system similar to that adopted a few years earlier to regulate the
production and use of pesticides. Under this system, approximately six hundred companies, most of which belonged to either the Proprietors Association of Great Britain or the Association of the British Pharmaceutical Industry, agreed to submit their products for scrutiny before conducting clinical trials or marketing; a system was also established to monitor approved drugs for adverse effects.

This scheme of self-regulation was subsequently changed. In 1968, faced with evidence that many British companies were not participating in the voluntary regulation scheme, Parliament enacted the Medicines Act, which established a mandatory licensing system to be administered by the Department of Health and Social Security. A Medicines Commission, composed primarily of professional experts, was formed to advise the minister on its implementation. Of several expert committees that were formed, the two most important were the Committee on Safety of Medicines, which advises the licensing authority on questions of the safety, quality, and efficiency of medicines for human use, and the Committee on the Review of Medicines, which reviews the safety, quality, and efficiency of existing products on the British market. Despite this shift from a voluntary to a statutory system of regulation, the pattern of industry-government cooperation established earlier in the decade has persisted.

The Committee on Safety of Drugs and the voluntary system did set the pattern of informality of approach and good relationships with the industry that the Committee on Safety of Medicines and the Licensing Authority have striven to maintain. This “approachability” and flexibility of the British licensing system, which is much appreciated both by industry and by the medical profession and is admired throughout the world, is largely due to the attitudes engendered by the Committee on Safety of Drugs during its period of operation from 1964 to September 1971.12

Ironically, while the British system of drug regulation has been frequently cited by both academic and industry critics of American regulatory practices as a model for the United States, in fact the British legislation of 1968 has been subject to many of the criticisms leveled at the 1962 amendments to the Food and Drug Act. A survey of the British pharmaceutical industry found that the shift from a voluntary to a legally mandated licensing system had not resulted in a substantial improvement in patent safety. Firms were . . . unanimous that the Act has had harmful effects through delays in the introduction of new drugs. . . . The industry claimed that the 1968 Act has had a major adverse effect on its R and D [research and development] activity. The result is longer development, less innovation, less basic research, and more clinical R and D being undertaken abroad.33

These criticisms are similar to those made of the FDA’s policies since the passage of the Food and Drug Act Amendments of 1962.

Nonetheless, substantial differences remain between the two nations’ approaches to drug regulation—differences that parallel those we have observed in other areas of regulation.34 In 1981 the average approval time for a new drug in Great Britain was thirteen months; in the United States it was twenty-three months. The United States figure actually represented a considerable improvement over 1979, when the average delay was thirty-five months; nonetheless, the average gap (dubbed the “drug lag”) between the approval of a drug in Britain and its approval in the United States has remained constant at fourteen months. During the 1970s, nine of the twelve most important new drugs introduced in the United States were available an average of two years earlier to patients in Britain. According to one drug company, Eli Lilly, the seven best-selling drugs it introduced between 1970 and 1979 were approved for use on average twenty-three months earlier in Great Britain. The world’s best-selling drug, Tagamet, an anti-ulcer medication developed by Smith-Kline Corporation, was approved by British authorities in two months; the FDA took thirteen months to process the application.

Moreover, the FDA’s procedures for approving new drugs are far more burdensome than those of the Committee on Safety of Drugs. Thus while the FDA requires that its permission be obtained before even the first phase of clinical testing begins, British regulatory authorities require only that they be notified. The FDA has far stricter standards as to what constitutes an adequate and well-controlled trial than does the CSD. It also requires considerably more documentation: the application for the approval of Tagamet in the United States consisted of 160 volumes, whereas in Britain only 12 were required. On the other hand, the British have a far more extensive system for monitoring adverse reactions following approval than do the Americans, and have not hesitated to suspend drug licenses when ill effects have become evident.

There is no evidence that the British system of drug regulation provides less protection for the public than the far stricter American system: dangerous drugs, such as Orallex, continue to be approved for use occasionally in both countries. On balance the American public appears to be worse off, since it also suffers from the FDA’s delays in approving the use of beneficial new drugs. According to one study,

of the 82 drugs that became mutually available, 14 were introduced in the same year in both countries, 43 were introduced in Britain first, and 25
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were introduced in the United States first. Britain enjoyed 120 drug years of prior availability, while the United States only enjoyed 59 drug years of prior availability. Of the other 98 drugs that were not mutually available, 75 were exclusively available in Britain, while 21 were exclusively available in the United States. Many of the drugs exclusively available in Great Britain had become the drugs of choice in British teaching hospitals.

Significantly, of those drugs exclusively available in Great Britain, only two were eventually withdrawn from use because of toxicity, and these contributed negligibly to total drug toxicity in Great Britain during the study period.35

The way the two nations have chosen to address the risks associated with the licensing of ethical drugs closely parallels their approach to regulating potential hazards in other dimensions of health and safety. While the British system, by expediting the approval of new drugs, makes it more likely that its citizens will be harmed by too little regulation, it minimizes the likelihood that restrictions will be imposed that do not contribute to the health and safety of the public. The American strategy produces precisely the opposite result: it makes it less likely that its citizens will be exposed to hazards that could have been avoided through stricter controls but more likely that costs will be imposed on industry that produce no discernible benefits to the public. Much the same could be said of the two nations' approaches to risk assessment in the area of environmental regulation. Thus in all three areas—occupational health and safety, environmental protection, and consumer protection—the approach of American authorities to risk assessment has been more conservative; British officials consistently appear willing to take somewhat greater risks. Yet at the end of the day, as the English say, the American public has received no better protection; indeed, in the case of drug regulation it actually appears to be somewhat worse off.

These comparisons of health and safety regulation in areas other than environmental protection also suggest that the pattern of ownership is not a critical factor in accounting for the differing patterns of government intervention in the two societies. For while some major industrial sources of air and water pollution in Great Britain—most notably automobiles, steel, and utilities—are either wholly or predominantly owned by the British government, the industries whose regulation we have reviewed in detail are not. Asbestos, vinyl chloride, pesticides, chemicals, medicines, food and food additives are all exclusively manufactured by privately owned firms in both countries. And yet the differences we have observed in the area of pollution control persist. Moreover, if the pattern of ownership were of political significance, one would expect the dynamics of regulation to have been affected by the significant expansion of the British public sector over the last half-century. But this has not been the case: the British approach to social regulation has remained remarkably stable over the last century. On the other hand, the relationship between publicly owned utilities such as TVA and regulatory authorities in the United States has been no less contentious than that between investor-owned utilities and the EPA.

Consumer Protection

Like the United States, Britain has, over the last two decades, enacted several new laws designed to increase the amount of protection available to consumers.36 The Consumer Protection Act (1961), the Weights and Measures Act (1963), the Food and Drugs Act (1968), the Fair Trading Act (1973), and the Consumer Credit Act (1974) regulate both product description and product quality and are roughly analogous in scope to statutes enacted over a similar time period by the United States government. They differ, however, in two important respects. First, while U.S. consumer protection laws tend to deal with either specific kinds of products (i.e., automobiles) or hazards (i.e., radiation), Britain's laws have been much more general. As a result, Congress has enacted far more consumer legislation than Parliament.

Second, a relatively larger proportion of consumer protection legislation is administered by the national government in the United States than in Britain, although the role of the states in this area remains extremely important. In Britain the enforcement of consumer protection legislation has remained almost exclusively in the hands of local authorities. The two most notable exceptions are drugs, which are regulated by the Department of Health and Social Security, and agricultural products, which are under the jurisdiction of the Ministry of Agriculture, Fisheries, and Food. In 1973 an Office of Fair Trading was established to encourage competition and protect consumers, but in the main the Department of Prices and Consumer Protection was given little direct regulatory authority; its responsibilities lay primarily in supervising and coordinating the efforts of local consumer agencies. (It was subsequently abolished in 1979.) Unlike the United States' new consumer protection laws, then, Britain's have not been administered by newly established regulatory bodies; rather, in most cases the scope of the authority of existing regulatory units has simply been expanded.

During the 1960s and 1970s many American regulatory officials at the federal level came to identify their mission as that of protecting the interests of consumers vis-à-vis business. Indeed, several officials ap-
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pointed to regulatory agencies during the Carter administration had previously been active as consumer lobbyists. In Britain, however, the officials of consumer agencies continue to define their roles as those not of advocates but of impartial arbiters. One British enforcement official noted:

We don’t see ourselves as the British version of Nader’s Raiders. But we do see ourselves as standard bearers—trading standard bearers—committed to the continuing task of ensuring those standards are respected and neither flouted nor eroded. Unlike Mr. Nader we don’t see ourselves wholly involved in taking sides in a fight. We know from experience that we are not best employed fighting battles for or with consumers.\(^{37}\)

On the whole, consumer agencies in Britain enjoy extremely good relationships with the companies whose conduct they are responsible for regulating: “enforcement officials see themselves not as policemen whose sole duty is to detect offences, but as officials who must prevent them before they occur.”\(^{38}\) Moreover, they appear to have a higher opinion of the integrity of the companies with which they interact than at least some of their counterparts in the United States.

As in the case of pollution control, the public portrayal of business as basically law-abiding and well intentioned is critical to the enforcement strategy of British consumer protection agencies.

If business were publicly labelled as unscrupulous or exploitative, its resistance to regulation would increase. By emphasizing that business is mainly law-abiding, the state and its enforcement agencies can reduce the fear of regulation and maximize the potentiality of obtaining compliance with their designs through persuasion.\(^{39}\)

In America, by contrast, the enforcement of many consumer protection laws became more adversarial during the 1970s, particularly at the federal level, with government officials frequently publicly chastising companies for their insensitivity to the welfare of consumers and ordering a large number of product recalls. American executives have a long litany of cases of “unreasonable” enforcement on the part of such agencies as the Federal Trade Commission, the National Highway Traffic Safety Administration, the Consumer Products Safety Commission, and the Food and Drug Administration.\(^{40}\) In Britain, industry and government have experienced far less conflict in this policy area. Unfortunately, we lack any data as to the relative effectiveness of the two nations’ regulatory styles.

Economic Regulation

There is little point in comparing the patterns of economic regulation in the United States and Great Britain since their institutional structures vary so enormously: industries that are regulated in the United States, such as airlines, telephone and telegraph companies, railroads, and utilities, have generally been publicly owned in Britain. This is not the case, however, in three important sectors: banking, securities, and insurance. With the exception of the Bank of England, which does not engage in direct commercial lending, all financial institutions are privately owned in both countries. How does each country go about the regulation of these institutions? The two nations’ approaches to the regulation of these sectors closely parallel the patterns we have observed in the areas of health and safety regulation and consumer protection. While the British make extensive use of self-regulation and place considerable reliance on informal social controls, the American approach is rule-oriented and legalistic. On balance, the amalgam of British financial institutions that constitute “the City” enjoy less nonstatutory regulation than any other major financial center; American financial institutions and markets are more strictly regulated than those in any other capitalist country.\(^{41}\)

The American securities industry is formally regulated by the Securities and Exchange Commission (SEC), established in 1934 in response to the scandals associated with the stock market collapse of 1929. While relations between the SEC and the industry it regulates have in general been more cooperative than has been the case with such social regulatory agencies as the EPA, OSHA, and the FDA, its basic approach to regulation is similar: it promulgates a large number of detailed and specific rules, issued after a set of formal hearings, and frequently resorts to prosecution when these rules have been violated. While Congress has tended to place fewer restrictions on the SEC than on many other regulatory agencies, the agency’s decisions are subject to judicial scrutiny. Each of the major stock exchanges has its own governing committee that establishes rules for the firms under its jurisdiction, but ultimate authority rests with the SEC.

Britain has enacted a number of statutes establishing regulations for publicly held companies. These regulations are extremely detailed and roughly analogous to those promulgated by the Securities and Exchange Commission. The first British Company Act was enacted in 1948 and the most recent in 1981; the latter implemented the requirements of the European Community’s fourth directive on company accounting and reports: its “provisions on the form and content of the accounts and the
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notes to the accounts represent some of the most detailed and prescriptive requirements in British common law. However, the British government plays virtually no formal role in the regulation of securities markets themselves. Whatever regulation exists takes place primarily under the auspices of two private organizations: the Council for the Securities Industry, established in 1978, and the Panel on Takeovers. The former is composed of a number of powerful bodies within the City, including the Stock Exchange Council, which oversees listed and unlisted companies and their dealings on the exchanges, while the latter is responsible for enforcing a voluntary code on takeovers and for policing the stock market on a deal-by-deal basis. Neither body enjoys any legal authority. There does exist a Prevention of Fraud (Investments) Act and the Department of Trade did issue new regulations following the folding of a major licensed securities dealer in 1981, but their scope is limited.

Banks in the United States operate under a complex set of federal and state regulations, the most important of which originated in the 1930s. Until the late 1970s, however, banks in Britain were free from statutory controls. In 1979, Parliament, partially in response to an EC directive requiring each member state to establish a uniform system of banking regulation, enacted the 1979 Banking Act. This law, however, established only a deposit protection scheme and a two-tier structure of recognized banks and licensed deposit-taking institutions. All other regulatory functions are still performed by the Bank of England, which continues to be responsible for approving applications for new banks, judging them on such vague criteria as the applicants' reputations and standing in the financial market. The Bank also monitors the activities of banks by examining their quarterly returns and conducting regular interviews with senior managers. Instead of applying fixed rules, it attempts to influence key individuals. One observer notes: "Frequent discussion between senior management of banks and senior officials of the Bank of England are more conducive to the maintenance of good banking practices than the technique adopted in many other countries of sending in teams of inspectors to examine the banks' books." The style of these discussions, which in the Bank's words are "the cornerstone of the ... system of supervision," is "designed to recreate the intimacy and informality of the old approach to regulation."

The two nations' approaches to insurance regulation follow similar patterns. In the United States, the industry is supervised by regulatory commissions established by the various states. While theoretically the industry in Britain is supervised by the Department of Trade, in practice this extremely important British industry is regulated by a body known as the Council of Lloyd's. Most of its twenty-eight members are drawn from the industry itself. Following scandals in 1979 and 1980, Parliament enacted the Lloyd's Act, which made it considerably easier for the council to exercise disciplinary powers over its member companies. And in 1982, following another series of scandals—the most dramatic of which involved an American company—that "raised doubts about Lloyd's ability to regulate questionable transactions by its brokers and underwriter members," Parliament approved additional controls. Under the terms of the statute enacted in 1982, brokers who do business with Lloyd's are forbidden to own a controlling interest in a Lloyd's underwriter; this separation must be complete by 1987. In addition, the public will now be provided with substantially more information about the financial activities of Lloyd's brokers. Lloyd's itself, however, will continue to enjoy substantial independence from direct government supervision.

As in the case of ethical drugs, the regulation of British financial institutions and markets has become more detailed and legalistic over the last decade. To a significant extent Britain has moved from a system based on self-regulation to one that combines self-regulation with a more formal system of statutory controls. Indeed, no area of British regulation of industry has been in such a state of flux since the late 1970s. While in the past the British sense of "fair play" made a system of regulation essentially based on clubbishness a viable one, its effectiveness has been increasingly called in question, in part as a result of the growing number of non-British firms with offices in London. Yet while the gap between British and American standards and policies has narrowed, substantial differences persist. In general, American regulations are stricter, are more formal, and provide much less scope for self-regulation. Britain places fewer restrictions on insider trading than does the United States, for example, and while the Securities and Exchange Commission closely monitors—and on occasion has overruled—the accounting standards established by the Financial Accounting Standards Board, in Britain the Accounting Standards Committee, composed of Britain's six accounting bodies, both determines standards and is responsible for enforcing them. In the related area of antitrust policy, Britain's Monopolies and Mergers Commission approaches each takeover or merger on an ad hoc basis. In America, in contrast, antitrust policy proceeds through the application of explicit standards whose interpretation is then subject to exhaustive judicial review.

The far stricter legal controls exercised by American regulatory authorities appear to have been no more successful in preventing periodic scandal and frauds; such episodes continue to occur in both societies. On balance, British holders of insurance policies, bank depositors, and
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investors appear to be no better or worse protected than their counterparts in the United States.

This brief survey of economic regulation also reinforces the argument that state ownership in Great Britain is not a critical factor in accounting for the differences in the regulatory policies pursued in the two countries. In these three sectors, the patterns of ownership in the two societies are identical, yet the differences in the styles of regulation that we have observed in other areas persist. It also suggests the limits of purely economic factors in accounting for the differences in the patterns of regulation in the two societies. For while many British industries, public as well as private, that directly affect public health and safety have certainly been less profitable than their counterparts in the United States, British financial institutions have been, and remain, extremely competitive in the world marketplace. (The same can be said of the British pharmaceutical industry.) And yet the British and American regulatory policies in these sectors show the familiar contrasting patterns.

Conclusions

In sum, each nation does exhibit a distinctive regulatory style, one that transcends any given policy area. The British government regulates the impact of business decisions on the environment in much the same way it attempts to control a variety of dimensions of corporate conduct. Regulation of industry tends to be more informal in Britain than in the United States, more flexible, and more private. Regulatory officials are able to exercise considerable discretion and tend to make policy on a case-by-case basis rather than through the application of general rules and standards. Little use is made of prosecution and much reliance is placed on securing compliance through informal mechanisms of social control, including, in many instances, self-regulation. Regulatory officials tend to have close working relationships with the members of those industries whose conduct they are responsible for supervising; the latter are closely consulted before rules are issued and regulations enforced. In America, on the other hand, regulation tends to be highly formalized: it proceeds on the basis of the application of broad rules that are made and enforced in accordance with strictly defined procedures. The entire regulatory process is subject to close scrutiny by the courts, the legislature, and the public as a whole. Fines are levied for violations relatively frequently and little reliance is placed on industry self-regulation.

Participation by nonindustry constituencies does vary widely across regulatory areas in both countries. The Alkali Inspectorate and the sys-

tem of land-use planning, for example, represent virtually polar opposites in terms of the opportunities they extend for participation by nonindustry constituencies. On the other hand, the American system of regulation does not invariably provide more opportunity for nonindustry participation than the British: trade unions are more directly involved in the making and enforcement of occupational health and safety regulation in Britain than in the United States. The critical distinction between the British and American approaches to regulation has to do with the terms in which nonindustry participation takes place.

In America there are numerous points of access to the regulatory process: interest groups can lobby Congress, participate in agency rule-making procedures, attempt to influence the regulatory review process at the White House, and challenge particular regulations in the courts. If state and local governmental units are also affected, the opportunities for intervention are multiplied still further. In Britain the number of forums at which the public can intervene in the regulatory process is more limited; to the extent that public participation takes place at all, it is generally restricted to a handful of arenas. An important reason why government regulation of industry has created so much less overt political conflict in Britain than in the United States is that the relationship among the interest groups involved in particular policy areas tends to be relatively structured. This is clearly true in the case of industry, whose interaction with government officials usually takes place through trade associations, though large companies generally negotiate with the government directly. But to a significant extent it is also true of nonbusiness constituencies: both by controlling access and by using private organizations to implement various regulatory policies, the British government has played an important role in shaping both the number and scope of the political pressures placed upon it. Alternatively, it is in part the relative openness of the American regulatory process that makes it so contentious.

There are exceptions to each of these generalizations. The making of British land-use policies takes place in highly visible forums and the procedures governing the "large public inquiries" are highly legalistic. In addition, over the last decade the regulation of both ethical drugs and the City has come to resemble more closely the more formal approach adopted earlier by the United States. Nor are the politics of British regulation invariably less contentious: the four case studies of British environmental policy described in Chapter 1 demonstrate the extent to which disputes over various policies have spilled over from the forums originally established to contain them and become highly public, involving both Parliament and the cabinet. Yet if one compares policies
in any particular area of regulation, significant differences remain. Particularly over the last fifteen years, a significantly larger proportion of regulatory policies have been formulated and implemented through relatively informal and private negotiations between regulatory officials and interest groups in Britain than in the United States. On the whole, the regulatory process has been far more public—and therefore more politicized—in the United States than in Great Britain. It has not, however, been notably more effective.

This conclusion does not, however, unequivocally support the position of political scientists who contend that policy process and outcomes are primarily the result of factors peculiar to the countries where they are developed, that is, that "politics matters." For the agenda of regulatory policy itself does appear to be shaped by socioeconomic factors that transcend any particular political system. It is not merely that the issues of environmental quality and of worker and consumer health and safety in general have become more salient in both Great Britain and the United States over the last two decades. Rather the specific ways in which these issues have been defined are strikingly similar. Consider the following examples of issue convergence: the construction and expansion of airport facilities, highways, and offshore energy facilities (i.e., LNG), the safety of nuclear power ( Windscale and Three Mile Island), the health impact of exhaust from the internal combustion engine (i.e., lead), the effects of pesticide use on the health of both birds and agricultural workers (DDT, dieldrin, 2,4,5-T), the environmental impact of energy production (the North Sea and the North Slope), the pollution produced by the burning of coal in power plants (acid rain), offshore oil spills (Santa Barbara and Torrey Canyon), the disposal of toxic wastes (Love Canal, Nuneaton), health hazards to workers (asbestos and vinyl chloride), the safety of ethical drugs (thalidomide, Orfalex).

This convergence of regulatory agendas appears to be due to two factors. One is the similar levels of industrial development in the two nations. The economies of both Britain and the United States are dominated by the same industries—indeed, in many cases, the very same multinational companies. Obviously these firms—and their products—produce many of the same externalities. Moreover, because significant segments of their populations are both affluent and highly educated, they have similar expectations: they are in a position to demand—and to pay for—less hazardous working conditions, safer products, and a more scenic and healthful physical environment. Industrial growth in a democratic society thus simultaneously creates environmental problems and places pressures on policy makers to ameliorate them. It is certainly not coincidental that public interest in these policy areas increased in both countries in the late 1960s and early 1970s, following two decades of relatively sustained and rapid economic growth.

There is a second explanation for the convergence of the regulatory agendas of Great Britain and the United States in the postwar period: international communication. The media have played an important role in disseminating information about various regulatory issues to interested citizens on both sides of the Atlantic. The London "killer fog" of 1958, the blowout at Santa Barbara in 1969, the wreck of the Torrey Canyon in 1965, the publication of Silent Spring in 1962, Love Canal in 1977—all received considerable press coverage in both countries. Policy makers and scientists have also communicated extensively: they attend the same conferences, read the same journals, and regularly exchange technical information. While on occasion scientists in Great Britain and the United States disagree about the hazards associated with particular products, chemicals, or technologies, these differences are far outweighed by their areas of agreement. This scientific consensus has played an important role in shaping the regulatory agendas of both nations. As a result, whenever one nation has identified a particular product, chemical, or production process as hazardous, officials on the other side of the Atlantic invariably find themselves under pressure from both activists and scientists in their own country to do likewise.

Since the early 1970s, activists in both countries have developed increasingly close ties: both Greenpeace and the Earth have British and American chapters, and Ralph Nader provided some of the initial funding for the investigatory journalism of the Social Audit. The German Marshall Fund regularly sends American environmentalists to European countries, including Britain. British environmental organizations, with fewer resources and with less access to government documents, have come to rely on their counterparts in the United States for information, and so raise in Britain many of the issues that have recently appeared on the political agenda in the United States.

Why do regulatory outcomes appear relatively similar in the two countries? Why have they been only marginally affected by the substantial differences in the ways in which policies have been made and enforced? One reason is that policy makers in both capitalist democracies operate under a similar set of constraints. For while economic growth both creates externalities and provides the available resources to ameliorate them, it also constrains the amount of resources that can be committed to such efforts. Obviously, national priorities do differ somewhat and there can be legitimate disagreements about what a nation or a particular industry, firm, or plant can "afford." But in the long run, the severity of enforcement is strongly influenced by the interests of policy makers, industrial
workers, and the public as a whole in keeping their nation's industries internationally competitive. Again, it is not coincidental that enforcement efforts in both nations slackened somewhat following the increase in oil prices in late 1973. Moreover, as I have previously argued, regulation is only one factor among many that affect either environmental quality or public health and safety. To the extent that the actual quality of the environment varies in Great Britain and the United States, the difference appears to be due less to their systems of regulation than to geographical conditions and industrial and technical factors.

Yet at the same time, the ways in which regulatory decisions are made vary substantially in Great Britain and the United States. In this context, the importance of each nation's political system remains decisive: these are distinctive national styles of regulation. Compared to both the regulatory agenda and regulatory outcomes, the way in which each political system has gone about making and implementing regulatory controls remains highly distinctive. The latter dimension appears to have been much less affected by technological or socioeconomic factors than the former two. The evidence presented in these two chapters does not of course resolve the debate over the relative importance of political and structural factors in shaping public policies across national boundaries. Their conclusion is valid only for the two countries and the limited numbers of issues they have addressed. At the same time, the body of scholarly literature on this subject does suggest that these generalizations can be applied to other industrialized democracies as well.

Lennart Lundquist's *Hare and the Tortoise* compares the regulation of air pollution in the United States and Sweden during the 1960s and 1970s. In two critical respects, Swedish and British public policies in this area are roughly comparable: both nations have placed primary emphasis on the reduction of pollution from stationary sources and both have tailored their regulatory requirements to the capacity of industry to comply with them. When the number of miles traveled is taken into consideration, automobile emissions did decline more rapidly in the United States than in Sweden. Because the Swedes made more progress in reducing pollution from stationary sources, however, the overall levels of air pollution in the two countries declined to a virtually identical degree: approximately 8 percent in Sweden and 10 percent in the United States. This similarity in regulatory outcomes is particularly striking when one reflects that Sweden is one of the most environmentally conscious nations in Europe. Moreover, the control of air pollution produced far less conflict there than in the United States.

In 1982 an exhaustive and comprehensive cross-national study of environmental regulation was completed. Conducted under the auspices of the International Institute for Environment and Society in Berlin, it examined the implementation of controls over the emissions of sulfur dioxide in ten Western European countries. The authors of the study found that there was no systematic relationship between the formal regulatory system adopted by each country and its actual level of sulfur dioxide emissions; in fact, the levels of sulfur dioxide emissions actually varied more within each country than among countries. They found no relationship between the amount of public participation in the regulatory process permitted in each country and the stringency of the permits issued by its regulatory authorities. The project's directors conclude:

The output analysis meticulously carried out in... selected [regions]... did not reveal any significant differences with regard to the environmental substance of the consents between those countries with a more open enforcement process (e.g., FRG, Belgium, France, and the Netherlands) and those with closed administrative procedures; i.e., those without institutionalized inclusion of members of the affected public (e.g., Italy, Switzerland, and the United Kingdom).

The conclusions of both these studies are similar to those reached by three other cross-national studies of social regulation. The study of chemical regulation in Great Britain, France, the United States, and the Federal Republic of Germany carried out by Ronald Brickman and his colleagues and Joseph Badaracco's analysis of the control of vinyl chloride in the United States, France, Great Britain, and Japan—both of which have been summarized here—make the same argument: regulatory agendas and outcomes vary much less than regulatory processes.

While Steven Kelman's book *Regulating America, Regulating Sweden* does not explicitly deal with the issue of effectiveness, it draws a similar conclusion: occupational health and safety regulations are comparable in the two countries but the level of political conflict is substantially greater in the United States.

These studies and my own analysis suggest that at least among the advanced capitalist democracies, the politics and administration of amenity and health and safety regulation vary much more than either actual regulatory outcomes or the political agenda itself. We now need to account for the differences in regulatory style between Great Britain and the United States; that is the subject of Chapter 6.