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LEGAL INSTITUTIONS AND POLLUTION: SOME INTERSECTIONS BETWEEN LAW AND HISTORY

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Most of the pollution control policies that appear in the reporters, statutes, and ordinances of the 1970s are not original responses to environmental problems. Rather, their function and form imply the acceptance of certain affirmative decisions and negative constraints that incorporate value judgments of the past.

Our legal past can be roughly divided into three eras. From 1800 to 1880 (nineteenth century I), commonly-shared premises concerning the perceived benefits of increased productivity through market processes made strong demands on the legal system. Law generously responded to these pressures by protecting the profit-maximizing behavior of men in the American market and, in general, supporting policies that advanced economic values.[1] From 1880 to 1930 (twentieth century I), rather than passively resigning control to other factors in society, law assumed more of an active stance. For the first time the legal process began to address some of the long-run social costs that had been generated (and then subordinated) by the nineteenth century I emphasis on short-term economic gain. After 1930 (twentieth century II), use of law to regulate economic behavior was not only generally accepted, it was expected.

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1. The nineteenth century I view of the economy, embodied in the law of property, contract, and torts was predicated on a faith in short-term, market-directed productivity. The nineteenth century I entrepreneur also believed that law should provide mechanisms for mobilizing scarce capital, and for devolving resources on private interests toward the goal of maximizing growth in exchange values. *See* J. Hurst, Law and the Conditions of Freedom in the 19th Century United States (1956) [hereinafter cited as Conditions of Freedom]; Hurst, *The Uses of Law in Four "Colonial" States of the American Union,* 1945 Wis. L. Rev. 577, 583.

The early nineteenth century concern for economic considerations manifested itself in a wide variety of constitutional, common law and statutory forms. For example, popular pressures for reapportionment were often linked to economic policy questions; when under-represented districts in the South failed to get their full share of state expenditures this impelled them to seek constitutional reform. F. Green, Constitutional Development in the South Atlantic States, 1776-1860, at 150-52 (1930). The common law doctrine of *caveat emptor* refused to imply warranties, promoting instead a rapid interchange of commodities free from the threat of subsequent litigation. *See* McFarland v. Newman, 9 Watts 55 (Pa. 1839). And state legislatures pressed for the mobilization of scarce capital to construct the canals, turnpikes and other bulk transport facilities that would provide revenue and open markets. *See* R. Shaw, Erie Water West: A History if the Erie Canal, 1792-1854 (1966).

The role of the law changed most dramatically in twentieth century I. In nineteenth century I, extra-legal economic forces shaped the style and function of policy-making. But in twentieth century I law itself had begun to have a positive impact on informal market behavior. By then law was beginning to influence the routine decisions of private actors by forcing entrepreneurs to consider and assess the effect of law on activities that had heretofore been limited only by the unregulated laws of supply and demand.[2]

Nowhere is this shift in legal emphasis from nineteenth century I market-protector to twentieth century I market-regulator more evident than in the law's relationship to the air pollution problem. Throughout most of nineteenth century I, law and its institutions refused to control the air pollution nuisance when to do so might have jeopardized the economic potential of the privately-owned property that typically caused the pollution.[3] In twentieth century I, though, laws began to force private decision-makers to absorb the "external" costs of polluting activities by making those activities seem more expensive and less attractive. State legislatures enacted enabling statutes giving municipalities the power to regulate air pollution;[4] cities in turn responded by passing ordinances declaring the emission of "dense smoke" to constitute a nuisance.[5] Courts usually upheld the constitutionality of this legislation.[6] In some instances, plaintiffs suffering from particularly offensive air pollution nuisances were granted common law or equitable relief.[7]

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2. This article will not attempt the near-impossible task of accurately measuring the extent to which people took account of legal rules in their activities. People may have found the impact to be so small in certain cases that they could safely ignore the law. On the other hand, in some areas the impact of law may have been so great that decisionmakers would have to assess carefully the costs and benefits imposed by legal rules before pursuing a course of action. Indeed, it would be quite difficult ever authoritatively to assert which factor in an entrepreneur's decision–legal rule, money supply, consumer demand, psychological quirk–provided the impulse for any specific choice. Thus, rather than trying to measure the law's impact, this essay shall assess how legal rules affect private decisions in terms of the direction of the impact.

3. *See* Laitos, *Continuities From Our Legal Past Affecting Resource Use and Conservation Patterns,* 28 Okla. L. Rev. 60 (1975).

4. *See, e.g.,* Ohio Rev. St. § 1692a [1890]: ". . . in all cities of the second grade of the first class, such cities shall have the power to regulate and compel the consumption of the smoke emitted by the burning of coal. . . ."

5. *See, e.g.,* Detroit, Mich., Rev. Ordinances ch. 67 [1890], stating in part: "The emission from any chimney or smokestack within the city of dense smoke . . . shall be deemed a public nuisance."

6. *See, ex parte Junqua,* 10 Cal. App. 602, 103 P. 159 (1909), in which the court upheld a Sacramento ordinance prohibiting the escape of soot from smoke stacks using distillate or crude oil.

7. *See,* Judson v. Los Angeles Suburban Gas Co., 157 Cal. 168, 106 P. 581 (1910). In *Judson* a California appellate court upheld the granting of an injunction and judgment for damages against defendant's gas works.

Such apparent regulatory vigor, coupled with the tendency on the part of reviewing courts to uphold smoke nuisance ordinances and statutes against constitutional attack, have led commentators to conclude optimistically that law has been a forceful advocate for the control of air pollution over the last 100 years.[8] More significantly, lawmakers have similarly concluded that use of law to achieve atmospheric purity in the past justifies continued and even more vigorous uses of the law today in twentieth century II. But are these conclusions correct?

This article is premised on two assumptions: (1) Before we use law to affect natural use decisions we should first understand the limitations of legal processes; and (2) These limitations are best revealed by studying how law failed or succeeded in the past. It is the thesis of this essay that a study of the legal history of the twentieth century I period will reveal a continuing underlying tension affecting the use of law as a tool for pollution control. *While it is true that the pre-1930 era recorded several positive law-making efforts that developed and communicated the major working principles of today's air pollution control law, twentieth century I law also contained features that thwarted the law's impact on the air pollution problem then, and by their stubborn persistence in the legal process, continue to limit law's impact on the pollution problem today.*

SOCIAL AND ECONOMIC CONTEXT: SETTING THE STAGE FOR STRONGER LEGAL CONTROLS ON ENVIRONMENTAL USE

Prior to 1880 the dominant social and economic institution which both affected and implemented men's choices was the market. Men had an ideal picture of the impersonal market as a beneficent institution because they saw in it key positive and negative values. *Positively,* as the market sanctioned sustained bargaining among individuals over the use of assets, it fostered the most energetic use of limited capital, manpower, and managerial talent. This positive virtue seen in the market reflected a more general idea prevalent in nineteenth century I—that economic productivity was the lever by which men could live a better life. *Negatively,* it was believed that such a broad pattern of bargaining prevented the market's outcome from ever being grossly biased in favor of any particular segment of private

8. *See generally* S. Edelman, *The Law of Air Pollution Control* (1970); Kennedy, Fifty Years of Air Pollution Law (presented at the 50th Annual Meeting of the Air Pollution Control Association, St. Louis, June 2-6, 1957); Kennedy & Porter, *Air Pollution: Its Control and Abatement,* 8 Vand. L. Rev. 854 (1955); German, *Regulation of Smoke and Air Pollution in Pennsylvania,* 10 U. Pitt. L. Rev. 493 (1949); McQuillin, *Abatement of the Smoke Nuisance in Large Cities,* 46 Cent. L. J. 147 (1898).

interest. This negative virtue reflected an idea that was brought to special definition in our legal institutions—that all forms of power were so open to abuse as to be distrusted, and hence a premium should be put on arrangements (of which the market was a prime example) that kept power in healthy balance.

By 1880 however, changes in social and economic arrangements drastically altered the form and function of the nineteenth century I market. Pre-1880 America had been preoccupied with the economic challenge of physical and social circumstance. Beginning around 1880, America's legal, political, and economic institutions had to concern themselves with the general organization and effects of power concentrations. The rapid settlement of cities, the growth of urban living, and a large increase in population had led to social configurations that overshadowed individual lives. The startling pace of the industrial revolution had stimulated the growth of factories; men lived in the midst of machinery, mines, railroads, and automobiles. New business inventions, such as the trust and holding company, underscored the extent to which individualism had given way to concentrations of financial and economic power. By the turn of the century, a simple market of numerous bargaining entrepreneurs had largely disappeared. In its place was the beginning of a new era of big industry, big finance, big cities, and an increasing interdependence of activities between them.[9]

9. The transformation of an agriculturally-based rural society characteristic of nineteenth century I to the urban industrial economy of the post-1880 era was one of the most significant changes in our nation's history. In 1860 the United States was a second-rate industrial country, lagging far behind England, France and Germany. But by 1890 the United States had stepped into first place, its manufacturing productivity had multiplied ten times over, and the value of its manufactured goods almost equaled the combined production of all three of the former leaders. Indeed, the twentieth century I generation introduced changes of such order that they made a new nation.

To explain adequately the reasons for these changes is beyond the scope and purpose of this article. It is certain, though, that law, government and lawyers were significant causative and supportive factors in the growth and expansion of the American economy. Throughout the last third of the nineteenth century government was largely controlled by men who were not only responsive to the wishes of business, but also eager to further the interests of mass markets and mass production. Law makers used the prevailing "laissez faire" philosophy to justify the virtual absence of effective restraints on the business community. When government intervened it was to extend loans, grant subsidies and franchises, hand over public resources, and protect home industries from foreign competitors. The Civil War had eliminated the Southern planter as a rival of the industrialist for control in Washington. No other economic faction, except for the short-lived Granger movement, offered effective competition for the attention and favor of state legislators. Moreover, unlike European businessmen, Americans had no heritage of canon law and feudal custom with which to contend; no royal prerogatives or aristocratic privileges barred James J. Hill (railroads), J. P. Morgan (banking), Andrew Carnegie (steel), or John D. Rockefeller (oil).

For a detailed history and analysis of this period, *see generally* T. Cochran & A. Bining, The Rise of American Economic Life (1964); E. Kirkland, Industry Comes of Age: Business,

The years between 1880 and 1900 were also a period in which large numbers of people first began to take notice of issues pertaining to natural resource use. This *fin-de-siecle* awareness of the physical environment was precipitated by two events: (1) an unexpected depletion of non-renewable natural resources, and (2) an accelerated rate of pollution of renewable common goods (mainly water and air). There had always been temporary and local shortages of lumber and minerals before. But as Americans pressed westward, the newly opened frontier had inevitably supplied the land, forests and raw materials needed to fuel territorial expansion and industrial growth. So too there had been isolated incidents of air and water pollution throughout nineteenth century I. But neither social nor legal pressure had been brought to bear on factories which dumped their refuse into the environment; most Americans believed the material benefits from more rapid industrialization were worth the community costs of smoke damage and dead fish. Moreover, blind faith in the market mechanism deterred imposition of extra-market controls on profit-seeking, goods-producing entrepreneurs.

By the turn of the century changes in America's social and economic condition forced closer attention to the social costs of reckless, unregulated natural resource use. First, the frontier had finally been pushed to the Pacific Ocean. With its disappearance had ended the nineteenth century I assumption of inexhaustible natural resources. There were limits to the amount of ore, lumber and fuel that could be extracted from a finite land area, and Americans in twentieth century I could no longer ignore the frightening consequences this fact held for a people accustomed to ruthless resource exploitation.

Second, due in part to some of the worst decades of agricultural depression in our nation's history and in part to an unparalleled wave of immigration from Europe, there had been a sudden convergence of people upon America's cities. Water supply and sewage disposal lagged far behind the needs of mushrooming city populations. Contamination of water supplies by sewage accounted in large measure for the wretched public health records of the period. Coal-burning furnaces fouled the air with soot and cinders, contributing to the general malaise of city slums.

Labor, and Public Policy, 1860-1897 (1961); S. Hays, The Response to Industrialism: 1855-1914 (1957).

For studies on more specific topics, *see* A. Schlesinger, The Rise of the City, 1878-1898 (1933) (urbanization); R. Hofstadter, The Age of Reform: From Bryan to F.D.R. (1955) (politics); F. Shannon, The Farmer's Last Frontier, 1860-1897 (1945) (agriculture); Conditions of Freedom, *supra* note 1 (law).

Such unprecedented urban growth also meant that the labor shortage that had persisted since colonial times no longer existed. Lured by this vast reservoir of labor, as well as by the vision of untapped markets present in large urban populations, more and more industry located in the midst of crowded city settings. Urban expansion of the factory system in the 1880's and 1890's in turn caused a degree of air and water pollution that would have seemed improbable fifty years earlier. Nor were there economic incentives to reduce the amount of pollution produced. The manufacturer, with all his capital tied up in new machinery, was driven to seek a rapid return on his products, generally at low prices in a highly competitive market. What better way was there for the hard-pressed industrialist to reduce overhead costs than by using the physical environment as a free and convenient receptacle for his factory's wastes? No matter that such economies were at the expense of diseconomies imposed on the surrounding city. For, to much of private industry, the end products of the manufacturing system certainly seemed to justify the resultant pollution nuisance.[10]

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10. The costs of pollution are traditionally attributable to at least three kinds of institutional influences—economic, social, and legal.

Economic causes. Because the present value of future goods and income is usually lower than the anticipated future value, individuals tend to satisfy immediate demands without taking into account the fact that the resource may have to be foregone in the future. This is especially true for self-renewable goods (such as air) in a marketplace of fluctuating prices. Moved by desire to maximize income upon an initial investment and pressed by competitive struggle, entrepreneurs tend to employ resource-exhausive methods of production to cut out-of-pocket costs. This emphasis on short-term profit also has the consequence of discouraging scientific resarch into pollution control. Since such research is not expected to generate income for the entrepreneur, it is unlikely to be given much attention. *See* K. Kapp, The Social Cost of Private Enterprise 94 (1950).

The incidence of pollution costs is likewise the result of limitations of the market mechanism. In the traditional market system prices balance off demand and supply pressures. But since the pricing system usually fails to put a charge on renewable resources, the resource factor is underpriced. When the selling price does not reflect the full cost to society of all inputs, more of the resource is used in production than if only the price of the resource factor properly reflected alternative uses to which it might be put. The end result is that the economy pays the subsidy to those activities tha put above average pressure on free resources. *See* Goldman, Why Do Polluters Pollute?, in Controlling Pollution: The Economics of a Cleaner America 12-13 (M. Goldman ed. 1967).

Social causes. When people create an ordered society, certain patterns of behavior emerge which tend to deplete resources and pollute the environment. Take the phenomenon of "free riding." When a given service is provided for all citizens, such that the benefit received by one does not diminish the benefit available to others, it is known as a collective or common good. But since no individual can be excluded from the benefit even if he fails to share the cost (as is true when individuals receive the advantages of free air), there is no incentive for the individual to pay the price for the service. As no remedial action will take place without its price being paid, the service will be foregone. The free-rider principle in part explains why there has never been a groundswell of privately-initiated pollution abatement actions. *See* Goetz, *Public v. Private Goods,* in Economics of Air and Water Pollution

By the end of the 1880's the fouling of air and water by unchecked industrial expansion and densely packed urban populations had reached such proportions that policy makers at last began to acknowledge the existence of social costs.[11] There was no other alternative. Market forces alone were insufficient to make the individual who wished to use the environment as a waste disposal medium consider or bear the costs his action imposed on others. If responsibility was going to be taken for abating diffused external costs, it was not going to come from private individuals bent on maximizing their own welfare. Remedial action, if it was to come at all, would have to come from the public sector—from laws and the legal process.

THE LEGAL RESPONSE TO AIR POLLUTION: LAW'S IMPACT ON PRIVATE BEHAVIOR

Just as various social and economic pressures have always exerted an influence on the development of law, so too does law, once enacted, affect private decisions and social experience. Although it is difficult to measure the extent to which people gather information

22-28 (W. Walker ed. 1969); Hardin, *The Tragedy of the Commons,* 162 Science 1243 (1968).

Legal causes. When the United States was a debtor nation with a shortage of labor and dependent upon foreign investments and overseas trade, laws responded to these facts of scarcity by furthering exploitation of natural resources. Later, when a common desire to foster industry in twentieth century I placed a premium on the free disposal of wastes into the environment, law reflected and encouraged this trend. With little social and economic pressure pointed in the direction of resource conservation, remedial laws which had the effect of diminishing profits by imposing anti-pollution costs on pollution producers were usually watered down. *See* F. Murphy, Water Purity: A Study in Legal Control of Natural Resources 50 (1961); J. Hurst Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin 1836-1915, at 262-63 (1964).

Not only were there deficiencies in the way law was used in the nineteenth century vis-à-vis the pollution problem. There were (and still are) institutional limitations on existing legal agencies that made these bodies ill suited to the needs of environmental management. The judiciary found itself confronting structural limits when it attempted to resolve polycentric pollution problems rather than adjudicate narrowly defined controversies. The legislature functioned best as a political assessment body and worst as a technological assessment body; it generally fully comprehended the benefits which ensued from a resource exhausive policy, while it understated the potential risks and costs. Even the basic structural units of an organized society, such as states, counties and cities, found their basic governmental powers insufficient to control the peculiarly mobile and diffuse problems of inter-jurisdictional pollution. *See generally* Hines, *Nor Any Drop to Drink: Public Regulation of Water Quality, Part I: State Pollution Control Programs* 52 Iowa L. Rev. 186, 199-201 (1966); J. Hurst, The Growth of American Law: The Law Makers 19 (1950); Zimmerman, *Political Boundaries and Air Pollution Control,* 46 Urban L. 173 (1968).

11. Social costs are direct or indirect losses to the community which result from private activities, but for which private parties are not held accountable. Air pollution is a good example of a social cost. It produces harmful effects on one or more persons, and originates in the actions of other people or firms who have no transactional relation with most of those injured.

about law, evaluate it, calculate and assess its impact, and then decide on a course of action, it seems certain that at some point most people take account of legal rules in their activities.[12]

Up until 1880 law entered the decisional calculus primarily because men saw in the legal process a means by which to order society and provide a framework for economic growth. Law existed to serve focused resource allocative purposes which emerged out of private experience in a substantially unregulated market context. The common law of contract, property and tort helped entrepreneurs realize economic expectations by allowing them to conduct their affairs in light of a legally protected standard of behavior. Legislation creating high protective tariffs, tax-supported municipal credits, and franchise grants to private operators were not only legal guarantees of broad areas for economic maneuver; they were also examples of law's usefulness as an instrument for removing barriers to individual initiative.

But by 1880 and the beginning of twentieth century I, unprecedented economic and social dysfunctions forced men gradually to move away from reliance on this law-supported market. The need for affirmative rather than supportive legal intervention in the affairs of men was now apparent. The situation could not take care of itself, and law, adapting to new conditions, was the primary instrument for focusing volition and bringing it to action in new directions. This resort to law was consistent with the American tradition of bringing economic and social trends to peaceful adjustment through politics and the legal process. In accordance with Calhoun's principle of meeting "power with power, tendency with tendency," law sought to re-establish a balance of power in collective action.[13]

Law's assumption of new responsibilities in shaping man's social environment was made easier because such legal action was built on the power already conceded to the legal order to promote the economy. Much of the post-1880 use of law was also contingent upon the

12. Sometimes people decide not to calculate the impact of legal rules because the cost of making the decision is greater than the benefit expected. Sometimes they are not only guided by extra-legal factors. Sometimes people do not make rational calculations at all and decide on the basis of a hunch or guess. But because of law's possession of the only legitimate monopoly of force within a community, the impact of law on any given decision necessarily becomes at least one factor that is typically considered. *See* J. Hurst, Law and Social Process in United States History 267-74 (1960).

13. Law's post-1880 push for action in new directions was partially the result of intervention of an affected community in the affairs of men who employed power. It was also an example of the long-held notion that organized power over men's will should be accountable to serve ends of broader concern than the purposes of the power holders. *Cf.* Chief Justice Taney's dicta in Charles River Bridge v. Warren Bridge, 36 U.S. 419, 11 Pet. 420 (1837): "While the rights of private property are sacredly guarded, we must not forget that the community also have rights. . . ."

now-established legitimacy of the police power to adjust patterns of relationships at given points of time. Armed with this tradition, lawmakers began to turn their attention from the current operating costs of social living and concern themselves instead with the overhead costs of social existence. It was government's legitimate right to set floors and ceilings for socially acceptable activity. Law, which had previously been used to help private economic growth, was now called upon to regulate it.[14]

More important to the twentieth century environmental defender was the fact that twentieth century I marked the first time law was extensively used to take account of other-than-monetary gains and costs. Eminent domain statutes promoted broadly diffused public interest values. Legislation limiting employer's defenses reflected the conclusion that it was not only unfair but inefficient to make injured individuals bear losses causally related to the new scale of economic operations. Health boards tested rivers and water supplies and contributed to the conservation of human resources. All this law-making emphasis on social cost accounting had an impact. Men now had to calculate the political-legal, rather than merely the market, effect on their decisions.

Law was equally responsive to the widely spread costs of air pollution. There was no other choice. To do nothing legally when factories dumped poisonous wastes into the atmosphere was in effect officially to sanction the resultant damage to life and property. Now, in twentieth century I, tacit acknowledgment of this fact resulted in new demands on the legal system. Law, not the market, was seen as the prime tool with which the air pollution problem might be corrected. And it was not long before the two most powerful pre-1880 legal institutions, the judiciary and the legislature, were called upon to address this new concern.

Due to the natural proclivity of injured parties to seek immediate relief through litigation, the courts were first to respond to twentieth century I air pollution. Unlike the situation in nineteenth century I, many of the reported court decisions of this post-1880 period favored the interests of plaintiffs over those of polluters. Of the cases

14. By the end of the twentieth century, it had been well established that certain key areas, such as public utilities, were subject to regulation by the states. It was also recognized that certain organizational products of the market, such as trusts and monopolies, could be regulated by the federal government. *See generally* L. Friedman, A History of American Law 384-408 (1973).

Ironically, there were some unforseen economic consequences of public regulatory law. For example, sanitary regulations required greater capital investment by farmers and dairy interests. This, in turn, affected the margin of survival in the agricultural industry and encouraged trends toward concentration and the rise of cooperatives.

that eventually reached the appellate level, many not only reflected a belief that unchecked industrial growth was a prime reason for the pollution problem; they also displayed an unprecedented judicial willingness to use law as a means of slowing the economic expansion that had caused polluted air.[15]

Other cases demonstrated a remarkably prescient grasp of the law's potential for internalizing the diffuse, external, non-monetary costs of economic activities, and conditioning the grant of a legal privilege on the fulfillment of certain legal duties. Cost internalization goals were implicit in *Price v. Philip Carey Manufacturing Co.*[16] To avoid the costs of an injunction the *Price* court required an industrial plant to spend $10,000 on a smoke prevention device. Similarly, in *Appeal of the Pennsylvania Lead Co.*,[17] an 1880 court foreshadowed eventual protection of non-measurable aesthetic interests in twentieth century II when it justified its injunction against an air polluter because: "Where justice is properly administered, rights are never measured by their mere money value."[18]

Another 1880's case, *Tuebner v. California Street Railroad Co.*,[19] recognized the failure of prior legal institutions to make clear that

15. *See,* Sullivan v. Jones and Laughlin Steel Co., 208 Pa. 540, 57A. 1065 (1904). In *Sullivan,* the court granted an injunction that stopped a polluting industry from expanding its operations. This would have been an unheard of course of action in nineteenth century I.

16. 310 Pa. 556, 165 A 849, 42 Am. Rep. 534 (1933).

17. 96 Pa. 116 (1880).

18. *Id.* at 539. The *Pennsylvania Lead* court not only foreshadowed twentieth century legal interest in conserving other-than-monetized environmental values. Its decision was also based on the following quotation from "Wood on Nuisances" that refuted nearly all the excuses and defenses that were to be repeatedly raised by polluters in the 1960s:

> A person cannot go on and build extensive works and make heavy expenditures of money for the exercise of a trade or business that will invade the premises of another with smoke . . . and then when called upon to desist turn around and claim immunity for his trade or business on the ground that to stop it would involve him in ruin, and that he has adopted the most approved methods known to science . . . nor that his trade is a useful one and beneficial to the community . . . or that by bringing a large number of workmen into the community it has enhanced the value of plaintiff's property.

Unlike the *Pennsylvania Lead* court, many twentieth century courts still hesitate to grant injunctive relief to aggrieved plaintiffs when such a decree would result in closing defendant's economic operations. *See* Boomer v. Atlantic Cement Co., 26 N.Y.2d 219, 257 N.E.2d 870, 809 N.Y.S. 2d 312 (1970); Riter v. Keokuk Electro-Metals Co., 248 Iowa 710, 82 N.W.2d 151 (1957). Much twentieth century state legislation likewise reflects reluctance to punish polluters when it is economically or technologically unfeasible to install antipollution devices. *See,* Colo. Rev. Stat. Ann. § 25-7-115(1)(a)(b)(1973), which requires the Colorado Air Pollution Variance Board to suspend enforcement of any emission control regulation whenever "control techniques are not available or . . . compliance with applicable emission control regulations . . . would create an unreasonable economic burden." *See also* Laitos, *The Limits of the Law: Functional Failures of the Air Pollution Variance Board,* 44 Colo. L. Rev. 513 (1973).

19. 66 Cal. 171, 4 P 1162 (1884).

some legal privileges advanced certain values only by undermining others. *Tuebner* overruled decisions which had held that the grant of a steam car franchise prevented property owners along the line from suing franchise owners for smoke injury. The court reasoned that a better rule was one which qualified the franchise by awarding damages to injured plaintiffs. As the court put the issue: "The municipality could grant a franchise for running cars along the street, but it could not grant a franchise to materially injure the plaintiffs in their property rights."[20]

Interest in the deteriorating state of man's physical environment was not just reflected in the focused expressions of judge-made common law. A broader concern about natural resource waste can be found in various post-1880 statutes. For most of the nineteenth century the prevailing legislative attitude had run to the opposite result. Tariffs, taxes and periodic sales of public land had helped shape an economic environment of multi-state markets; legislative-made law had encouraged industry, fostered credit facilities and promoted the allocation of human resources across a vast continent. But the raw materials of economic growth were not inexhaustible, and with rapid settlement and productive expansion came premature depletion of energy sources, contamination of water supplies, destruction of wildlife, erosion of soil and pollution of air. At nearly every level of government—national, state, and municipal—a new consensus developed which recognized that exhaustion and pollution of the natural endowment was not impossible. By the 1880s, acknowledgment of the existence of the problem had finally led to acceptance of a public responsibility to do something about it. Recourse to the courts was limited by the narrow constitutional strictures of case and controversy. Broad-reaching, prospective policy-making had to come from the legislative branch.

In the case of air pollution the first legislative bodies to take affirmative action were the common councils of large industrial municipalities. It is not surprising that it was the city, and not the state or federal government, which first responded to air pollution. People saw dirty air as a local problem, not a regional or national concern. True, Congress enacted the Rivers and Harbors Act of 1899, making it unlawful to deposit refuse in navigable waters;[21] but the problem of depositing refuse in the air was left to the cities, where most of this atmospheric dumping took place. State legislatures re-

20. *Id.*

21. 33 U.S.C. § § 407 et seq. For a 1970's application of the Rivers and Harbor Act, *see* Conn. Action Now, Inc. v. Roberts Plating Co., Inc., 457 F.2d 81 (2d Cir. 1972).

flected this belief that local problems were best dealt with by local law. Where state legislatures acted at all, it was only by granting first class cities the power to regulate smoke nuisances.[22]

Municipal government, on the other hand, was quite responsive to what was, in fact, largely a big city phenomenon. The city boss and his lieutenants in the wards and precincts were the first to hear many loud complaints about the poor quality of the air. Aldermen seeking re-election could not ignore the fact that the city's atmosphere was unable to assimilate the tons of waste and soot that were being expelled from industry and dwelling units every day. Usually proceeding under broad charter grants of police power, city councils hurriedly drafted and passed regulatory ordinances.

Air pollution ordinances enacted by these late nineteenth century metropolitan common councils typically fell into three categories. Most common were the ordinances which simply declared (1) that the emission of dense smoke from any chimney or smokestack within the city was a public nuisance, and (2) that those who caused the emission of this smoke were liable to a fine, usually not exceeding $100.[23] A second type of ordinance did not merely declare the escape of dense smoke illegal; these more sophisticated laws placed an affirmative duty on polluters, requiring them not only to remove all ashes and cinders from their shops, but also to construct their furnaces "so as to consume smoke arising therefrom."[24] The third kind of ordinance struck at the apparent cause of the city's smoke problem—extensive use of soft, high sulphur, bituminous coal. These ordinances flatly prohibited the importation, sale, use or consumption of any coal containing more than 12 percent ash or 2 percent sulphur.[25]

All three categories of ordinances had common characteristics.

22. *See* No. 130 [1890], Ohio Laws 166, *supra* note 4. Some state legislation went further and prohibited the use of highly polluting "soft" coal. *See* Law of Apr. 16, 1895, ch. 322, Laws of New York (1895).

23. *See*, Detroit, Mich., Rev. Ordinances, ch. 37: "Any owner . . . who shall cause smoke to be emitted from such structure . . . shall be liable to a fine of not less than $10 or more than $100." *See also* New York Sanitary Code, § 181 (cited in People v. New York Edison, 159 App. Div. 786, 144 N.Y.S. 707 (1913)); Chicago Ordinances § 10 1903 (cited in Glucose Refining Co. v. Chicago, 138 Fed. 209 C.C.N.D., Ill. 1905).

24. *See*, section 134 of N.Y. City Sanitary Code (1899). The ordinance read in part:

> Owners, lessees, . . . of every blacksmith or other shop . . . shall cause all ashes, cinders, rubbish, dirt, and refuse to be removed to some proper place. . . . Nor shall any owner . . . allow any smoke . . . to escape . . . from any such building . . . and every furnace employed in the working of engines . . . or used for the purposes of trade or manufacturing, shall be so constructed as to consume smoke arising therefrom.

25. *See*, St. Louis Mo. Ordinances 41804, sec. 5340 (cited in Ballentine v. Nester, 350 Mo. 58, 164 S.W.2d 378 (1942)).

Perhaps most noticeable was the fact that none of them had as an objective the achievement of a fixed level of over-all air quality. The attainment of a certain minimum of atmospheric purity was the approach later adopted by states and the federal government in twentieth century II.[26] But to the nineteenth century common council, the apparent essence of the problem seemed to be manifested in isolated instances of dense smoke escaping from smokestacks and the equally obvious goal was to stop the smoke. Another distinctive feature of most of these ordinances was their lack of provision for an enforcement mechanism. Although the ordinance typically declared that the emission of thick dense smoke was a public nuisance, no public official was empowered either to locate or abate these nuisances.

But perhaps the greatest weakness with these laws was that they were nearly always worded solely in terms of a simple "dense smoke" prohibition. The popularity of the phrase was in part because many state courts had held that "dense smoke" was a nuisance per se.[27] By writing the talisman phrase into their ordinances many common councils apparently hoped that the courts would arrive at the same conclusion. Unfortunately, whatever advantage there was in having dense smoke recognized as a nuisance per se was outweighed by the fact that such a narrowly focused prohibition ignored the more harmful invisible pollutants present in the smoke. Moreover, satisfaction with the phrase was so longlasting that for many years lawmakers and administrators failed to investigate whether more than just smoke affected the ambient air and made no effort to define more precisely the acceptable and unacceptable density limits of smoke plumes.[28]

Despite these shortcomings (or perhaps because of them), most twentieth century I smoke control ordinances and statutes success-

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26. Most modern environmental protection agencies first establish air quality standards consistent with environmental goals and then enforce these standards by regulating or prosecuting polluters who violate them. *See* Message of the President Relative to Reorganization Plans No. 3 of 1970 relating to the functions of the Environmental Protection Agency, H.R. Doc. No. 366, 91st Cong., 2d Sess. (1970). *See also* Ill. Ann. Stat. ch. 111.5 § 1004 (West 1970); N.Y. Environmental Conservation Law Art. 11-71 (McKinney 1970).

27. *See* People v. New York Edison, 159 App. Div. 786, 144 N.Y.S. 707 (1913).

28. By the twentieth century, many smoke nuisance ordinances specified the density and opacity limits of smoke emissions by making reference to the Ringlemann Scale. *See* Rochester N.Y. Ordinances, § 39 (a) (cited in City of Rochester v. Macauley-Fien Milling Co., 199 N.Y. 207, 92 N.E. 641 (1910)).

The Ringlemann scale showed six blocks of graduated gray going from near white to near black; most laws specified that any shade of smoke darker than a third block on the scale was a violation. Unfortunately, the Ringlemann method measured only density, not volume. Nor could it be used at night, during times of rain, humidity, or high winds.

fully withstood constitutional attacks on their validity.[29] As one court stated in upholding the Chicago smoke ordinance of 1903:

> It seems clear that all regulations of the uses of property should be created with a reasonable reference to the necessary demands of trade or manufacturing. . . . But, while it is difficult to adjust the exact rights of business interests and public good, once adjusted, society has power to assert itself for the protection of itself.[30]

By 1916 the issue had come before the United States Supreme Court. In *Northwestern Laundry v. Des Moines,*[31] the Court removed the last doubts about the constitutional ability of states and cities to regulate the air pollution nuisance.

> So far as the Federal Constitution is concerned, we have no doubt the state may by itself, or through authorized municipalities, declare the emission of dense smoke . . . a nuisance . . . and that the harshness of such legislation, or its effect on business interests, short of a merely arbitrary enactment, are not valid constitutional objections.[32]

All this constitutional, common law and legislative lawmaking in the pollution field should have had an effect on polluter behavior and the quality of the surrounding atmosphere. Because of some fundamental limitations in the American legal process, however, pollution control law in fact had very little impact either on men's decisional calculus or the pre-1930 ambient air.

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29. Ordinances were upheld in People v. Lewis, 86 Mich. 49 N.W. 140 (1891); Dept. of Health of N.Y. City v. Ebling Brewing, 78 N.Y.S. 11 (Mun. Ct. 1902); Ballentine v. Nester, 350 Mo. 58, 164 S.W.2d 378 (1942). Enabling statutes (granting legislative permission to enact smoke ordinances such as the above) were upheld in City of Cincinatti v. Miller, 11 Ohio Dec. Reprint 788, 29 W.L. Bull. 364 (1893); City of Brooklyn v. Nassau Electric R. Co., 44 App. Div. 462, 61 N.Y.S. 33 (1899).

30. Glucose Refining Co. v. Chicago, 138 Fed. 209 (C.C., Ill. 1905).

31. 239 U.S. 486 (1916).

32. *Id.* at 491. The Supreme Court decision in *Northwestern Laundry* was not unexpected. In 1894 the Court had held that a statute or ordinance regulating nuisances did not violate the due process clause if it was reasonbly necessary for the accomplishment of the purposes of the law, was not unduly oppressive and did not arbitrarily interfere with private business. Lawton v. Steele, 152 U.S. 133 (1894). In Hadacheck v. Sebastian, 239 U.S. 394 (1915), the Court had found that it was within the police powers of Los Angeles to pass and enforce an ordinance which made it unlawful to operate a brick-burning factory within the city limits. Also in 1915, in an original proceeding initiated by the state of Georgia to restrain the Tennessee Copper Company in Tennessee, the Court allowed an injunction which prohibited smoke discharge from the Tennessee plant. State of Georgia v. Tennessee Copper Co., 240 U.S. 650 (1916).

The United States Supreme Court affirmed the rationale of the *Northwestern Laundry* case more recently in Huron Portland Cement v. City of Detroit, 362 U.S. 440 (1960).

LIMITATIONS OF THE AMERICAN LEGAL SYSTEM: LAW'S LACK OF IMPACT ON DECISION-MAKING

Despite the efforts of city councils, state legislatures and courts, the post-1880 air pollution problem grew rather than diminished. Pollution sources increased and air quality deteriorated.[33] By the 1950's contaminated air was so extensive that lawmakers tried totally new legal approaches. County air pollution agencies replaced city smoke inspectors. A growing assertion of authority by the federal government produced the first national Air Pollution Control Act of 1955; the Department of Health, Education and Welfare developed air quality criteria that reflected scientific awareness of various non-visible pollutants; the concept of regional airsheds was proposed and adopted for the first time.[34]

There were two primary reasons for the lack of legal impact on pollution problems in twentieth century I. Both of these still function as restrictions on effective legal regulation of environmental pollution in the 1970's. (1) Limitations inherent in the nature of the legal process prevented law from affecting natural resource use decisions even when law specifically addressed the pollution problem. (2) The absence of continuous deliberated decision and periodic re-assessment of ongoing law produced drift in policy and default to the market.

A. Practical Limitations on the Use of Legal Power

It would be heartening if rising levels of air pollution could be explained by a lack of law. One could then arguably conclude that pollution might be prevented simply by using more law.[35] Unfortu-

33. It is difficult to determine precisely the extent to which the quality of the air deteriorated, since no measurements of pollutants were made or recorded in twentieth century I. The most we know for certain is that the 1880-1930 period witnessed an enormous expansion of the most common air pollution sources–factories, railroads, steamships, automobiles, refuse-burning dumps, and coal-fired home furnaces. Nevertheless, a rough estimate of the degree of air pollution perceived during this period can be obtained by noting concern over the issue voiced in various pre-1930 publications. *See*, Milwaukee Free Press, June 27, 1907 at 15; Chicago Record Herald, June 28, 1907 at p. 4; The Madison Capital Times, Apr. 3, 1923 at 43.

34. *See* Milwaukee County Ordinances, ch. 88 (1948); The Air Pollution Control Act of 1955, Pub. L. No. 85-159, 69 Stat. 322 (1955); The Clean Air Act of 1963, Pub. L. No. 88-206, 77 Stat. 392 (1963) (codified at 42 U.S.C. § § 1857-1857(1) (1964)); Reitz, *The Role of the "Region" in Air Pollution Control,* 20 Case W. Res. L. Rev. 809 (1969).

Despite these efforts to control air pollution from 1955-1965, the dangerous contamination of the air continued. In part this was because only 58 percent of the urban population was served by some local pollution control program. Comment, A History of Federal Air Pollution Control, 30 Ohio St. L.J. 516, 529 (1969).

35. Now that interest in environmental law has swollen the ranks of law school activists, the most common approach to the pollution problem is to call for increased legal intervention. *See* J. Sax, Defending the Environment (1970); Note, Toward a Constitutionally

nately, review of the pre-1930 record suggests that it would be unproductive merely to exhort lawmakers. For the fact is that law *was* continuously called upon to regulate the pollution nuisance. It was *in spite of law* that men used the air as a garbage dump. There were three reasons for this ineffectual legal impact on polluter behavior: (1) there were limits on what law could accomplish without extra-legal assistance; (2) lawmakers tended to address pollution's symptoms, not the underlying causes; and (3) legal institutions were underdeveloped.

1. The limits of law alone

The capacity of law to induce changes is sharply reduced whenever a legal solution to a problem requires extra-legal knowledge. Policy implementation is particularly difficult where scientific and technical knowledge is at a premium; when this information is missing, policymakers are prevented from considering all the relevant values in their decisions. Moreover, the legal process is often unable to muster general will to action on the basis of such limited knowledge. And if lack of probative data can be raised as a successful defense by the regulated class, then the impact of any legal rule is apt to be so small that the rule can be safely ignored.

Such was (and is) the case with the air pollution problem. Both the nature of the problem and its abatement linked it especially closely to scientific and economic factors over which lawmakers had no control and of which they had little knowledge. Worse, law possessed inadequate procedures with which to acquire this information.

Varying states of scientific and technical knowledge affected protection of interests through the common law. Most court cases involving air pollution were nuisance actions where aggrieved private parties requested an injunction. In such instances the flexible powers of an equity court combined with the required determination of "reasonableness" to develop a judicial policy of balancing the harm to the plaintiff against any usefulness of the defendant's conduct.[36]

Protected Environment, 56 U. of Va. L. Rev. 458 (1970); Comment, The Role of the Judiciary in the Confrontation with the Problems of Environmental Quality, 17 U.C.L.A. L. Rev. 1070 (1970); Juergensmeyer, *Control of Air Pollution Through the Assertion of Private Rights,* 1967 Duke L.J. 1126.

36. As explained in the early air pollution case of Cogswell v. New York, New Haven, and Hartford R.R., 103 N.Y. 10, 13, 8 N.E. 537 (1886):

> The compromise exacted by the necessities of the social state, and the fact that some inconvenience to others must of necessity often attend the ordinary use of property . . . have compelled the recognition . . . that each member of society must submit to annoyances consequent upon the ordinary and common use of property, provided such use is reasonable. . . .

When the difficulties of proving a causal connection between harm and effluent were balanced against the usual economic importance of an accused factory, the plaintiff's obstacles were obvious. As one 1894 court said in refusing to enjoin the operation of a dairy, ". . . there is no presumption that such results [production of offending gases] come from the use of dairies."[37] So too, lack of effective smoke control equipment was usually sufficient justification to foreclose judicial relief and to leave undisturbed the bad practices of economic enterprise.[38] Even with the sophisticated twentieth century II air samplers and recent technology offering a new generation of pollution control devices, problems of proof and uncontrollable emission sources still remain in the 1970's.[39]

The existence or absence of extra-legal knowledge played a large role whenever courts reviewed the validity of municipal smoke ordinances. Difficulties in linking health or property damage to air pollution initially defeated judicial enforcement of early city smoke control laws.[40] Sometimes courts were able to uphold ordinances by relying on "judicial notice" of the cause of damage.[41] But courts could also take judicial notice of such extra-legal facts as might show that smoke control ordinances were unreasonable. For example, in *City of Buffalo v. New York Central R. Co.*,[42] judicial notice of the "immense amount of money needed to finance the operations commanded by the ordinance" provided the basis on which the court

37. McDonough v. Robbens, 1 Mo. App. Rep'r 78, 60 Mo. App. 156 (1864). The wide judicial discretion exercised in private nuisance cases was manifested in one court classifying the pollution from fifty coke ovens as only a "petty annoyance." The same court then concluded that air pollution was "indispensable to progress." Bove v. Donner-Hanna Coke Corp., 236 App. Div. 37, 258 N.Y.S. 229 (1932) aff'g 142 Misc. 329, 254 N.Y.S. 403 (1931). Twenty years later the City of Buffalo was still having difficulty with the same factory. *See* City of Buffalo v. Savage, 1 Misc.2d 337, 148 N.Y.S. 2d 191, aff'd mem., 309 N.Y. 941, 132 N.E.2d 313 (1955).

38. *See* Union Planter's Bank and Trust Co. v. Memphis Hotel Co., 124 Tenn. 649, 139 S.W. 715 (1911). In the *Union Planter's Bank* decision, the court refused to enjoin emission of smoke from a hotel chimney because of "doubt as to whether there is any device which could be attached to . . . defendants' boilers which would . . . do away with the smoke. . . ."

39. *See generally* Krier, *Environmental Litigation and the Burden of Proof*, in Law and the Environment 105 (M. Baldwin & J. Page eds. 1970); Miller & Borchers, *Private Lawsuits and Air Pollution Control*, 56 A.B.A.J. 465 (1970); McElheny, *Environmental Agency is Divided Over Car-Pollution Control Issue*, N.Y. Times, Oct. 15, 1973 at 40, col. 1; The Madison Capital Times, July 11, 1973 at 6.

40. *See, e.g.*, Dept. of Health v. City of New York v. Ebling Brewing Co., 38 Misc. 537, 78 N.Y.S. 13 (N.Y. City Mun. Ct. 1902). The *Ebling* court struck down section 134 of the 1899 New York City Sanitary Code because defendant could not be penalized for allowing smoke to escape where it was not shown it was detrimental or annoying to any person.

41. City of Rochester v. Macauley-Fien Milling Co., 199 N.Y. 207, 92 N.E. 641, (1910); State v. Tower, 185 Mo. 79, 84 S.W. 10 (1904); Bowers v. City of Indianapolis, 169 Ind. 105, 81 N.E. 1097 (1907).

42. 125 Misc. 801, 212 N.Y.S. 1 (Sup. Ct. 1925).

held the Buffalo smoke law invalid. In *People v. Detroit, B.I., and W. Ferry Co.*,[43] the court's belief that "no device has been invented that is adequate for the elimination of smoke" helped it strike down the Detroit smoke control ordinance. The effect of these court rulings was not lost on state legislators. By 1900 it was not uncommon for enabling statutes to contain a proviso excepting polluters from the requirements of city smoke ordinances when no control equipment was available.[44]

On the other hand, when the validity of smoke prevention ordinances was sustained, the courts would sometimes admit that certain crucial facts were outside their knowledge. One of the nation's first smoke control ordinances, the Chicago ordinance of 1880,[45] was upheld primarily because the court conceded "we cannot know . . . the consequences that may flow from . . . allowing the common council to place an embargo on all the interests that have to use this [smoke-producing] coal."[46] Other courts skirted the lack-of-knowledge issue by glibly invoking the principle that legislative bodies are presumed to have considered the effect, practicality and expense of the new law.[47] Such judicial decisions did more than allocate the risks and burdens of ignorance. They also obscured the fact that legislative bodies had neither the expertise nor inclination to make intelligent investigation of the worsening air pollution problem before hurriedly enacting law.[48]

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43. 187 Mich. 177, 153 N.W. 799 (1915).

44. *See, e.g.,* State v. Tower, 185 Mo. 79, 84 S.W. 10 (1904). In *Tower,* the Missouri Supreme Court upheld the constitutionality of a 1901 Missouri dense smoke statute largely on the basis that

> [t]he legislature . . . [was] careful to abstain from even a semblance of oppression, and an invasion of the property right of owners . . . to maintain engines and boilers for the manufacture of wares and merchandise, by providing that, if there were no known practicable devices by which dense smoke so generated could be prevented, they should not be punished therefor.

45. Chicago, Ill., Gen. Ordinances, § § 1650, 1651 (1880).

46. Harmon v. City of Chicago, 110 Ill. 400 (1884).

47. *See* Moses v. U.S., 16 App. D.C. 428 (1900). *Moses* upheld the constitutionality of Congressional legislation making the emission of dense smoke within the District of Columbia a public nuisance. Act of Feb. 2, 1899, ch. 79, 30 Stat. 812. The court stated:

> That there may be no smoke consumption appliance that will prevent the nuisance is not a matter of relevancy. . . . It is presumed that Congress considered the effect and probable injury upon private property.

See also Bradley v. District of Columbia, 20 App. D.C. 169 (1902), where the court again concurred in the *Moses* rationale.

48. The problem of supporting clean-air laws with more precise scientific information is still present in the 1970's. *See* McElheny, *EPA Official Deplores Lack of Research to Support U.S. Clean-Air Legislation,* N.Y. Times, Oct. 6, 1973 at 20, col. 3.

2. Drug store law

There were two ways in which law's initial response to the natural resource pollution problem was like that of an unskilled physician prescribing a drug. First, most lawmakers (particularly those in the legislative branch) opted for quick cures of symptoms rather than addressing more fundamental causes. There was no thought of long-term therapy. The harm was focused and the causes seemed specific. One could see what soot did to laundry and furniture, and everyone knew which smokestacks emitted black smoke. The urban public demanded immediate relief, and legislative lawmakers were quick to respond. The medicine prescribed was remedial, not preventative. Diffused costs were ignored. Statutes and ordinances attacked the most visible and superficial manifestation of the problem, smoke, not the underlying economic and market dysfunctions that caused the smoke.

The readiness with which the nineteenth century turned to law when there was a problem tended both to confuse the nature of the problem and blunt the effectiveness of its legal cure. For example, twentieth century I lawmakers commonly believed that air pollution troubles were due to deviance from proper market patterns. Confidence in the market as a socially beneficial allocating institution led to the belief that law needed only to deal strictly with market deviates. What was not considered was that the external costs of air pollution were due precisely to the fact that the market was working just as its functional character inclined it to work; that the smoke nuisance was a typical product of the natural tendency of the market, rather than a correctable internal defect.[49] Nor did policymakers consider the more remote ramifications of their action; whether the benefits realized by air quality improvements were worth certain long-run costs (the costs of government intervention, the value of opportunities foregone).

There was a second way in which the typical legislative response to air pollution was like prescribing a drug. Prescribing drugs help some physicians retain a sense of mastery in ambiguous situations. Once a patient needs to get treatment, the physician needs to give it—or at

49. There was no way the market could withhold air from the polluter. Nor could the market function to charge for the right to pollute or the right to breathe. Therefore, there could be no prices paid or payments foregone by polluters that would convey to them information about the social disutility of their conduct or give them an incentive to change their ways. *See* J. Dales, Pollution, Property, and Prices (1968); Goldman, *Pollution: The Mess Around Us,* in Controlling Pollution: The Economics of a Cleaner America 3 (M. Goldman ed. 1967).

least the appearance of it. The twentieth century I common council and state legislature were caught in a similar dilemma. The public expected not just relief, but some affirmative treatment. If no smoke control laws had been passed, legal agencies would in effect have been stating that there was nothing wrong with smoke. Worse, a lawmaker-politician's refusal to give out laws would have seemed like he was telling the public to suffer, even though he had the means to relieve the pain.[50]

Many smoke control ordinances passed after 1880 exemplify use of law to secure quick remedies of only the most obvious symptoms of the air pollution problem. On the one extreme were those ordinances premised on the belief that air pollution could be eliminated simply by prohibiting short smokestacks.[51] More indicative of the drug store approach to problem-solving were unworkable ordinances that were later struck down by the courts either because (1) they required all businesses to operate without emitting any visible gas at all (an accomplishment that is difficult to achieve even in 1975),[52] or (2) they unreasonably prohibited manufacturers from carrying on their business irrespective of its effect on the surrounding community.[53] Other smoke ordinances were held invalid because local governments had enacted them without waiting for necessary state enabling legislation.[54] Rather than promptly resorting to law, it

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50. On the role of the lawmaker as a "political entrepreneur" whose laws function to produce beneficial public goods, *see* Riker, *Public Safety as a Public Good,* in Is Law Dead? 370, 375 (E. Rostow ed. 1971).

51. *See* Neosho, Mo., Ordinances (1902). The Neosho law was a model of simplicity: "It shall be unlawful . . . to allow [a] smokestack which is not 50 feet high so as to carry the smoke high. . . ." This ordinance was upheld in State *ex. rel.* Hainsworth v. Shannon, 130 Mo. App. 90, 108 S.W. 1097 (St. Lluis Ct. App. 1908).

52. *See* Cleveland v. Malm, 5 Ohio N.P. 203 (1898). The *Malm* court invalidated the Cleveland smoke ordinance because "[t]he legislature did not give the council power to prohibit smoke under any and all circumstances and at any and all times." In Pittsburgh v. W. H. Keech Co., 21 Pa. Super 548 (1902), the Pittsburgh smoke ordinance of 1895 was declared void because "[t]he prohibition of any smoke whatever [is] impracticable and impossible in present conditions." *See also* People v. Cunard White Star, 280 N.Y. 413, 21 N.E.2d 489 (1939), which found the New York City smoke ordinance invalid as applied as exceeding police powers when ". . . even in the exercise of the greatest care [with-up-to-date equipment] . . . it would be impossible . . . to avoid such smoke. . . ."

53. *See* New York v. Rosenberg, 138 N.Y. 410, 34 N.E. 285 (1893). In *Rosenberg,* judgment against the defendant was reversed because there was no evidence that the businesses covered by the statute (Laws of 1892, ch. 646, New York) injuriously affected the community. *See also* City of St. Paul v. Gilfillan, 36 Minn. 298, 31 N.W. 49 (1896). In *Gilfillan* the St. Paul smoke ordinance of 1886 was declared void in part because the court held that the emission of dense smoke was not necessarily a public nuisance.

54. *See e.g.,* Sigler v. Cleveland, 3 Ohio N.P. 119, 4 Ohio Dec. 166 (1896); St. Paul v. Gilfillan, 36 Minn. 298, 31 N.W. 49 (1886). In Pfister Chemical Co. v. Romano, 15 N.J. Misc. 71, 188 A. 727 (1937), the smoke ordinance was invalid as not being within the authority of the existing enabling statute. When legislatures conferred the requisite author-

appears that decisionmakers should first have prudently assessed both the problem and the limitations of the legal tools at their disposal.

3. The underdevelopment of legal institutions

Organizational limitations precluded effective response to resource use problems as much as weaknesses in the substantive law. The task of addressing post-1880 pollution problems fell upon legal agencies that, weak in tradition and rushed by events, were ill-equipped to meet them. Courts and legislatures shared the economic biases of the community without developing means of expressing alternative viewpoints. When conflicts were brought to their attention, these institutions were too simple to develop complex techniques that would place all the important considerations before the decision-maker.

The legislative branch was particularly vulnerable to one-sided approaches to problem-solving. In both state legislatures and municipal common councils, legislative practice made it the rule that any major piece of legislation be considered in consultation with the main organized interests affected by the proposal. The practical influence of major industrial polluters tended to limit pollution control legislation, especially when manufacturing interests were often the main financial supporters of these elected officials. The accepted idea of the intermittent, limited session had an equally adverse effect on the quality of work done by the legislative branch. It contributed to a lack of long-range policy planning. And since the authority of standing committees ran only for the life of the session, their members lost what experience they might have gained had they been able to conduct continuing investigations. The large turnover of membership also helped ensure that few legislators ever acquired expertise in the environmental field.

The final legislative product usually reflected these structural restrictions. While enabling statutes and charters generally gave cities the power to prevent dense smoke, no instructions were given as to how this might be accomplished, when exceptions should be made, or what was to be considered "dense." Nor was there any indication that the legislature had considered whether there was more to improving air than merely preventing smoke.[55] Municipal common

ity on cities, the ordinance was usually upheld. *See also* City of St. Paul v. Haugbro, 93 Minn. 59, 100 N.W. 470 (1904).

55. Typical of the charters of this period was the Charter of the City of Minneapolis (cited in State v. Chicago, M. and St. P. Ry. Co., 114 Minn. 122, 130 N.W. 545 (1911). The Minneapolis charter read in part: "[The common council shall have the power to prevent] . . . the emission of dense smoke in said city and to declare them to be nuisances and to provide for their abatement."

councils responded to these broad grants of authority by either simply declaring soft coal or smoke to be a nuisance and leaving it at that, or by passing unenforceable ordinances which required businesses to install impossible-to-build furnaces that didn't smoke.[56] When the legal inducement to comply with the ordinance was only a $10 fine, it is no wonder that these early smoke laws had so little effect on municipal air polluters.[57]

The judicial branch was institutionally unsuited to regulate the pollution problem. While the total community impact of atmospheric pollution was serious, the effec on individuals was too slight to make it worth their time or expense to protect the general welfare by litigating their own complaints. Nor did courts have the investigative machinery, specialized knowledge, time or range of sanctions necessary to regulate thousands of emission sources. Moreover, the common law case-by-case, instance-by-instance method of building law prevented judicial formulation of broad-reaching policy. Court decisions were atomized; few generalizations emerged from particularized cases.

What was called for was the creation and use of autonomous, centralized administrative agencies that specialized in issues of natural resource use and pollution control. Unfortunately, although states and the federal government set up administrative machinery to assume more regulatory responsibility in some fields after 1870, strong administrative control of environmental pollution did not emerge until mid-twentieth century. Twentieth century I smoke ordinances either ignored the use of administrative agencies altogether (leaving the enforcement of these ordinances somewhat of a mystery), or placed pollution prevention functions in pre-existing agencies (such as the Board of Health or Building Inspection Department) that were busy with other jobs.[58] Besides lacking specialization in pollution control, these agencies had few fact-finding skills, inadequate jurisdictional authority and no administrative corps or field staff to enforce regulations.

Despite early underdevelopment of legal institutions, the twen-

56. *See, e.g.*, Minneapolis, Minn., smoke ordinance, 1909 (cited in State v. Chicago, M. and St. P. Ry. Co., 114 Minn. 122, 130 N.W. 545 (1911). *See also* New York, N.Y., Sanitary Code § 134 (1899): "Every furnace employed in the working of engines . . . used for the purpose of trade or manufacturing, shall be so constructed as to consume smoke."

57. *See* Detroit, Mich. Rev. Ordinances, ch. 67 (1890). Occasionally the fine would be as high as $50. *See* People v. Boden, 66 Mich. 273 (1891).

58. *See*, Rochester, N.Y., City Ordinances (1909) (cited in City of Rochester v. Macauley-Fien Milling Co., 199 N.Y. 207, 92 N.E. 641 (1910)), which provided that it was the duty of the Commissioner of Public Safety to enforce the ordinance.

A few cities did create a special office of smoke inspector. *See* Milwaukee, Wisc., Gen. Ordinances, Ch. 21 (1905).

tieth century finally brought legislative, judicial and administrative changes more favorable to action against pollution. With its open-ended jurisdiction the legislature was sensitive to new currents of popular concern. Increased use of the legislature's investigatory power explored the need for better environmental legislation and helped build informed public opinion. Local government reform efforts abolished the office of the justice of the peace and replaced it with a unified municipal court system. Larger cities created special divisions of the Municipal Court—the misdemeanor and small claims courts—that offered environmental litigants the advantages of a simple and summary procedure. And of course, the phenomenal mid-twentieth century growth of administrative power eventually provided continuous enforcement of pollution standards for people who had too little means or too small a personal stake to fight their own battles.[59]

B. Drift and Default

Practical limitations on the effective use of legal power were not the only reasons for a lack of legal impact on the twentieth century I pollution problem. Legal processes are not self-starting. Law was unable to influence pollution prevention decisions when there was an absence of continuing directed policy and when this neglect permitted environmental policy to be shaped by forces outside the law. In the case of air pollution, there was a flurry of legal activity around the turn of the century, and then passive acceptance of the existing state of affairs for fifty years before any improvements were considered. This drift allowed ideas and attitudes originating outside the law to create demands upon law that materially affected its use and character. Public policy defaulted to the market again, just as it had in nineteenth century I. Not only until 1930 did we turn to centralized administrative control and regulation as a means of fending off the market's adverse effects.

1. Drift: appeasement and contentment

Public policy tends to succum to drift, ignorance and indifference born of fragmented human effort and focused special interests. If a problem becomes noticeable enough, informed opinion and public pressure usually demand a legal response. But once this initial response has been made, unless large numbers of people experience the problem with substantial, individualized impact, there is usually no

59. *See generally* J. Hurst, The Growth of American Law: The Law Makers 80, 154, 158-59 (1950).

real effort to use law in order to gain control over the matter. Mastery of a situation becomes too difficult. Problems are to be addressed, but once addressed, can be forgotten.

Such was the story of the twentieth century I air pollution problem. A pall of smoke over America's cities generated enough complaints to force stirrings in the legal order. Statutes, ordinances and court decisions provided first-generation pollution control instruments. But then law stood aside for half a century. There was little administrative follow-through; there was no re-assessment of ongoing policy. Rote imitation of past approaches seemed far preferrable to imaginative schemes requiring research and study. And though rising pollution levels, new pollution sources and an expanding array of invisible pollutants called for novel policy departures mid-way through twentieth century I, law makers were unable to see that these new problems differed from old ones. Law responded to differing situations as if these situations could fall within old categories, with attitudes developed in familiar areas from the past.[60]

This drift in policy helped the twentieth century I decisionmaker by offering him a comfortably limited range of responsibility. The time, energy, information and human resources available to decisionmakers limit the number of possible solutions that can be considered. But if problems are addressed in ways very similar to the way previous, related problems were approached, the decisionmaker can escape the labor of thinking about the nature of the problem and its ultimate cure. He may even be lulled into the belief that all possible solutions have already been canvassed; that the current prevailing wisdom is the best of all possible responses.

Lack of independent energy and investigation was particularly evident in the pre-1930 legislative response to air pollution. Although atmospheric quality steadily worsened, pollution control statutes and ordinances continued to employ 1880 solutions.[61] Rare court

60. *See* J. Hurst, Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836-1915 108 (1964).

61. Legislative enactments controlling the use of high-polluting soft coal examplify the tendency of lawmakers to imitate each other over a long span of time. In 1890, the Ohio legislature gave all first class cities the power to regulate smoke emitted by coal burning. Laws of 1890, § 1692a, Ohio Rev. Statutes. The state of New York followed suit in 1895 by prohibiting factories from using soft coal except for heating purposes. Laws of 1895, ch. 322, New York. Around the turn of the century Brooklyn passed an ordinance which prevented the burning of soft coal within four miles of the Brooklyn city hall (Brooklyn, N.Y., Gen. Ordinances, p. 479, ch. 322, § 1 (1895), cited and upheld in City of New York v. H. W. Johns-Manville Co., 89 App. Div. 449, 85 N.Y.S. 757 (1903)). By 1940, fifty years after the original Ohio statute had been passed, St. Louis was still attempting to control air pollution by means of a soft-coal prohibition (St. Louis, Mo., City Ordinance 41804, § 5340, cited in Ballentine v. Nester, 350 Mo. 58, 164 S.W.2d 378 (1942)). This mimicry helped defer consideration of whether law should control other-than-coal-caused smoke.

rulings invalidated unrealistic ordinances and thereby occasionally forced the legislature to rethink its premises.[62] But the common law method of reasoning by analogy more often encouraged judges and lawyers to consider competing values only within the bounds of familiar rationales. This limited approach was evident in the universal use of private nuisance theories; experimentation with other doctrines, such as *res ipsa loquitur* or trespass, might hve reallocated the burden of proof to the defendant-polluter.[63]

Satisfaction with past policy did not merely permit the twentieth century I decisionmaker to neglect consideration of all the consequences of his decision. It also allowed him to omit from his deliberations elements that were in fact relevant, which in turn allowed him artificially to limit the scope of the potential solution. Take the case of the franchise. Franchises were required in situations where, because of the diffuse but important impact of particular economic activities on many people, special legal permission was needed to carry on the activity. Yet, while railroads and power plants needed these franchises before they could operate in cities, law failed to use the leverage of the franchise as a means of regulating the social costs of these activities. In fact, once granted, the franchise was often judicially interpreted as giving the holder a municipal license to create social costs. As one court stated when it struck down the Jersey City smoke ordinance of 1909:

> The chartered right of a railroad to operate its line includes the right to make such noise, smoke and smells as are reasonably unavoidable . . . , even if some injury and some damage to property is caused thereby.[64]

2. Default to the market

The preponderance of drift does not mean that law responded to changing situations in an aimless fashion. It is true that a great deal of law came out of the cumulative drift of past policy rather than out of effort directed at updating basic decisions. But absence of alternative criteria for public policy had the effect of encouraging

Nor was there any concern expressed as to whether supplies of non-polluting hard coal might be exhausted some day.

62. *See* People v. Cunard White Star, 280 N.Y. 413, 21 N.E.2d 489 (1939). The *White Star* court declared invalid a New York City ordinance that prohibited all smoke (New York, N.Y., Sanitary Code, ch. 20, art. 12, § 211). The court found that it was impossible, even with the most modern equipment, always to avoid the production of smoke.

63. *See, e.g.*, Comment, The Application of Res Ipsa Loquitur in Suits Against Multiple Defendants, 34 Albany L. Rev. 106 (1969).

64. Erie R.R. Co. v. Mayor, etc., of Jersey City, 83 N.J.L. 92, 84 A. 697, aff'd mem., 84 N.J.L. 761, 87 A. 467 (1912). *But see* Tuebner v. California Street Railway Co., 66 Cal. 171, 4 P. 1162 (1884).

law to respond to the functional demands of the most powerful economic institution—the market. If one looks at the pre-1930 common law of pollution control, for example, one finds reflected a dominant pattern of priorities largely set by market needs. Judges, in particular, were unable to reconcile abatement of pollution's widely scattered social costs with other, more pressing economic requirements. Society was more sensitive to vital services than to the unpleasant effects of these services. Law, in turn, was not to be used to deter polluting activities when to do so might disrupt the flow of economic benefits these activities produced. In short, drift in environmental policy did not so much result in haphazard decision-making as it did in deliberate default to the market. Men may have had faith in the ability of their legal institutions to control situations. But until these institutions were given direction, the situation too often controlled them.

This legal default to market forces was judicially manifested in three forms. First, courts displayed a penchant for protecting "key" polluter activities from the claims of private litigants. Railroads and steamships guaranteed transportation between interstate markets, and it was thought that such operations should not be enjoined for a mere smoke nuisance.[65] A city's manufacturing interests were just as critical to the proper functioning of the market. Accordingly, some early smoke statutes specifically excluded manufacturing establishments from their scope.[66] When city ordinances did not make this exception, courts would hold the ordinances invalid because "great cities depend for their existence upon industry and commerce."[67]

Second, courts were reluctant to grant plaintiffs equitable relief whenever the anticipated multiplier effects of an injunction seemed too great. Typically, if it appeared that injunctive relief might adversely affect economic spin-off benefits generated by the polluter, then the injunction would be denied. Thus, in *Madison v. Ducktown Sulphur, Copper and Iron Co.*,[68] the court refused to enjoin smoke-producing operations at defendant's plant because 12,000 people depended on its payroll and because the tax assessment against the

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65. *See* McMorran v. Cleveland-Cliffs Iron Co., 253 Mich. 65, 234 N.W. 163 (1931) (refusal to restrain vessels engaged in navigation from emitting smoke at dock); Pettit v. New York Cent. and H.R. R. Co., 80 Hun. 86, 29 N.Y. S. 1137 (1894) (refusal to grant plaintiff damages from smoke emitted by railroad pumping station).

66. *See* Laws of 1899, ch. 375, Minn. Statutes. Chapter 375 gave St. Paul the power to prohibit dense smoke but provided, "nothing shall be construed to apply to manufacturing establishments."

67. People v. Cunard White Star, 280 N.Y. 413, 21 N.E.2d 489 (1939). *See also* Commonwealth of Pa. v. Standard Ice Co., 59 P.L.J. 101, 9 J.L.R. 270 (Quar. Sess. 1910).

68. 113 Tenn. 331, 83 S.W. 658 (1904).

plant was one half of the tax aggregate of the entire county. In *DeBlois v. Bowers,*[69] an injunction was denied on account of the "line [to be] drawn between interests of a community in its industrial establishment which give occupation to its inhabitants and revenue in the form of taxes and . . . individuals who are annoyed [by fumes]."[70] In *Bartel v. Ridgefield Lumber Co.,*[71] the court denied injunctive relief against a major air polluter because of the importance of the lumbering business to the economy of the state of Washington. Courts were also afraid of the multiplier effects of *stare decisis;* the legal precedent set by a successful plaintiff in one case might force the courts to take an economically untenable position in the future. As one 1911 court admitted: "We cannot shut our eyes to the obvious truth that if the running of this [polluting] mill can be enjoined, almost any manufactory can be enjoined."[72]

Third, by protecting polluter interests from city ordinances and private suitors, court decisions advanced the dynamics of increased productivity at the expense of non-market environmental values that did not find expression in bargained transactions. Judicial responses to air pollution generally embodied the notion that active, productive use of land leading to market-measured economic growth was preferable to the passive, diffuse interests of unorganized pollution receptors. Thus, in 1897, a court struck down a St. Louis ordinance prohibiting the sale of highly polluting soft coal in part because "St. Louis has attained its growth in population and wealth in large degree from the fact of its proximity to the great mines of bituminous coal. . . ."[73] Forty seven years later an Illinois court justified its decision to void a city dense smoke ordinance on the grounds that "people residing in industrial communities must bear . . . the detriment occasioned by industries of the community."[74]

This hierarchy of values was even more evident when individual plaintiffs sought equitable relief in the context of private litigation. Judges usually assessed market utility far more important than clean air. Thus, when it came time to "balance the equities" in a particular lawsuit, it was easy for courts to conclude that the widely-felt economic value of polluting industry outweighed individual interests in smoke abatement. As one court reasoned when it refused to enjoin

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69. 44 F.2d 621 (D. Mass. 1930).

70. *Id.*

71. 131 Wash. 183, 229 P. 306 (1924).

72. Union Planter's Bank and Trust Co. v. Memphis Hotel Co., 124 Tenn. 649, 139 S.W. 715 (1911).

73. St. Louis v. Edward Heitzeberg Packing and Provision Co., 141 No. 375, 42 S.W. 954 (1897). *See also* St. Louis v. Regina Flour Mill Co., 141 Mo. 389, 42 S.W. 1148 (1897).

74. City of Kankakee v. New York Cent. R. Co., 387 Ill. 109, 55 N.E.2d 87 (1944).

the operation of a defendant's coke ovens: "The interest of the public ... in vast allied and dependent industries ... is higher than that of the individual."[75]

CONCLUSION

All this favor for industrial growth suggests there may be one further reason for the lack of impact of legal rules on pre-1930 polluter behavior. Drift, default, drug store law, underdeveloped agencies and an absence of technical knowledge played their part. But there is reason to find also that legal institutions deliberately shielded polluter interests from the full force and potential of a more comprehensive public policy.[76] Although the record is unclear, the question is ripe for further study. For legal protection of polluting activities is only a shorthand for law-sanctioned promotion of the economic exchange values embodied in these activities. And if it is the character of law to be responsive to a society's dominant values,

75. Robb v. Carnegie Bros. & Co., 145 Pa. 324, 22 A. 649 (1891). The language of other twentieth century I court opinions reflected a similar ranking of values. In Elliott Nursery v. Duquesne Light Co., 281 Pa. 166, 126 A. 345 (1924), the court denied an injunction against a municipal power plant because "[t]hose living and carrying on their affairs [in the city centers] ... have been required for generations to put up with the disadvantages which result from ... industrial activities in order that they may be carried on." In Reber v. Ill. Cent. R. Co., 163 Miss. 164, 138 So. 574 (1932), the court held it would not enjoin a railroad roundhouse because "[t]he public welfare requires that industry have some adobe where it can function without molestation." The court in Holman v. Athens Empire Laundry Co., 149 Ga. 345, 100 S.E. 207 (1919) went even further. Plaintiff was there denied injunctive relief when the court flatly declared "[t]he pollution of the air ... indispensable to the progress of society, is not actionable."

76. *See generally* notes 65-75 and accompanying text *supra*. Even when courts upheld the validity of city smoke ordinances, the judge's opinion sometimes revealed that the decision might have been otherwise if the courts had not been satisfied that certain economic pre-conditions had been fulfilled. For example, although the New York dense smoke ordinance was upheld in People v. New York Edison, 159 App. Div. 786, 144 N.Y.S. 707 (1913), the court warned: "... [T]he discharge of dense smoke ... would not constitute such a menace to public health ... as to sustain thy prohibition thereof ... if that would render it impossible to use private property for business purposes...." The Minneapolis smoke ordinance of 1909 was upheld in State v. Chicago, M. and St. P. Ry. Co., 114 Minn. 122, 130 N.W. 545 (1911), when the court decided that to require the defendant railroad company to change to smokeless coal would not create too great a hardship.

Similar sentiments were expressed when courts granted the aggrieved plaintiff injunctive relief. The majority of a sharply divided court in Sullivan v. Jones and Laughlin Steel Co., 208 Pa. 540, 57 A. 1065 (1904), granted an injunction preventing an industrial polluter from expanding its operations. The dissent would have refused equitable relief because of the wages paid and the number of people employed by the defendant. In Price v. Philip Carey Mfg. Co., 310 Pa. 557, 165 A.B49 (1933), the court agreed to require the polluting plant to purchase a smoke control device but made it clear that the result would have been different had the plaintiff asked the plant to cease operations. *See also* Tuebner v. California Street Railway Co., 66 Cal. 171, 4 P. 1162 (1884), where the upper court sustained a jury verdict against a defendant-polluter only because "... the damages found [by the jury] for the injury suffered are not excessive...."

then it may be that pollution control law is bound to fail so long as (1) America prizes market-defined economic growth; and (2) pollution producers epitomize desired, market-oriented economic values. It is a pessimistic forecast, but one nonetheless implied by the post-1880 pollution story.