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The Future of Air Pollution Control in the Corporatist State

by Jamison E. Colburn

Chasing the Wind: Regulating Air Pollution in the Common Law State, a book authored by Noga Morag-Levine, an Assistant Professor of Political Science at the University of Michigan, is a broad indictment of "air pollution control policy"[1] in our common-law state narrated from a "historical" and comparative perspective.[2] In the end, though, the indictment misses its mark. For, while the mistakes of U.S. air pollution control policymakers are many, they are not those spotlighted by this book. Morag-Levine argues that, when compared to a nation like Germany, the United States could be doing a lot better in its air pollution control. From the perspective of one who teaches pollution control law (and still practices it occasionally), I must admit I find this argument sobering. Unfortunately, the shortcomings featured in the argument are more misdemeanors than high crimes and the solutions suggested seem more sound and fury than sound policy prescriptions.

Ultimately, I found *Chasing the Wind* pointing most directly to serious shortcomings in the academic research being done in the United States in this field—not to the institutions the book critiques. This dearth of research is due at least in part to the dominance of two sets of claims about environmental law, one owed to a seemingly limitless enthusiasm for law and economics over the past 15 years,[3] the other owed to the pervasively discriminatory effects of our legal and economic systems in the siting of locally undesirable land uses.[4] These two sets of claims have literally dominated the political and scholarly agendas to the exclusion of other, perhaps better questions. As a result, *Chasing the Wind* must grapple with a series of false dichotomies and policymaking canards instead of with the issues that a more fruitful dialogue on the structure of the state and its effects on pollution control policy would embrace.

In this Article, I lay out the series of claims Morag-Levine develops and present some of the highlights of her evidence. *Chasing the Wind* makes a convincing case that American pollution control law is a pale version of what it might have been given the resources it has consumed and the enormity and complexity of the problem. The book's critique of specifics in the Clean Air Act (CAA) is somewhat awkward, though, and that ultimately detracts from the success of the work. After examining the major claim Morag-Levine advances, Part I briefly sketches some of her supporting claims and a few of the comparative conclusions in the book. With that description of the study in mind, Part II traces the outlines of a different critique of the field of air pollution control law and policy in the United States—a critique that must conclude with a call for better future research. Thus, I finish Parts III and IV by offering a prediction that our "common-law/administrative state" is actually best understood as transitioning to a "corporatist" one. While this is not unprecedented in American governance, it is not altogether welcome, either, and it promises to be the setting for our biggest conflicts in air pollution control (indeed in much of environmental policymaking) for the foreseeable future.

I. The "Resilience of Nuisance-Law Principles"

The core descriptive point of *Chasing the Wind* is that the common law still rules the American legal imagination.[5] In Chapters 1 and 2, Morag-Levine begins what evolves into a broad critique of statutory/administrative air pollution control law in the United States through a somewhat counterintuitive starting point: common-law nuisance cases from the 17th century and after. By using the detailed studies of others, *Chasing the Wind* recreates the world governed by common-law processes to prove how lawsuits, litigants, burdens of proof, and remedies conspired to "regulate" polluters.[6] Morag-Levine's fascination with that re-

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1. Noga Morag-Levine, Chasing the Wind: Regulating Air Pollution in the Common Law State 181 (Princeton Univ. Press 2003) [hereinafter Chasing the Wind].
2. *Id*. at 4.
3. *See infra* notes 137-47, 150-56 and accompanying text.
4. *See infra* notes 108-09, 148 and accompanying text.
5. Chasing the Wind, *supra* note 1, at 5.
6. An example might be made of a landmark federal common-law nuisance action, Georgia v. Tennessee Copper Co., 206 U.S. 230 (1907). *Tennessee Copper* is briefly featured in *Chasing the Wind*, but it might have been used to much greater effect. The case involved a controversy uniquely instructive to the major claim advanced by the book about injunctions against pollution and the forcing of feasible technological advances instead of "absolutist" bans on all pollution that are reserved only for the most egregious conduct. By 1907, the copper smelters in Ducktown, Tennessee, had been operating for many years and the effects (from the emitted sulfur dioxide and other toxic compounds) were profound. Determined to avoid the liability the common law would eventually attach to the operation, one of the companies built a large stack to disperse its emissions. Eventually, this strategy backfired because the emissions simply traveled further—into neighboring Georgia—and only widened the devastation. Robert V. Percival et al., Environmental Regulation: Law, Science, and Policy 84 (4th ed. 2003) ("Causation was not a sig-

gime—made almost exclusively by nuisance doctrines and estates in land—is what drives her later critique of the "administrative state" and its rules of air pollution control, as Part I explains.

A. The Common-Law Mind: No Way Out?

Chasing the Wind's primary claim is that air pollution control in the administrative state has been shaped by the dominant principles and institutional relationships of the "common-law state," its predecessor.[7] The administrative state of statutes and bureaucrats evolved directly from the common-law state because its emergence was both managed and legitimated by courts.[8] Ultimately, though, this claim goes well beyond the observation that common-law concepts had and still have a framing effect on our modern statutory regimes. Morag-Levine's whole explanation of modern air pollution control revolves around the question: "what is a common-law state?" While "the common-law state" is hardly unfamiliar to American lawyers, depending on what sense the question is given its meaning can change drastically.

To lawyers the common-law state is the adversarial, "juricentric" Anglo-American system, to be distinguished from an "inquisitorial" civil-law system of France or Germany. But to historians and social scientists this question is far more important and nuanced. It sets up a matrix of factors to be examined when attempting to explain the interactions of law and society in the Anglo-American culture. Morag-Levine's answer to *that* question is that a common-law state is the non-positivist "rule-of-law" vision of governance as a constant adjustment of legal "rights" held by individuals.[9] In the common-law state, these are rights whose priorities are fixed by lawsuits through the crafting of judicial opinions, a process with its own deep rationality so fabled in Anglo-American constitutional mythology.[10] Supposedly, the status quo of some "organic" or "prepolitical" order of rights is adapted incrementally by holdings and these holdings constitute the largest measure of a common-law state.[11] Debunking that mythology cannot be

nificant issue in the litigation because the environmental effects of the open roast-heap smelting process were strikingly visible."). Once the land of another state was involved the U.S. Supreme Court's original jurisdiction arose, leading to the finding of liability in the 1907 opinion by Justice Oliver Wendell Holmes.

The clearer relevance of *Tennessee Copper*, though, comes from its subsequent history. After the 1907 opinion, the smelting companies, faced with the threat of an impending injunction to close, set up a fund to compensate those injured and agreed to curtail their operations during the growing season. When this failed, Georgia went back to the Court, and it was then that the Court entered the actual injunction. *See* Georgia v. Tennessee Copper Co., 237 U.S. 474 (1915). The injunction was not for immediate shutdown, but rather for: (1) comprehensive recordkeeping; (2) biweekly inspections by a "competent inspector" to be appointed by the Court; and (3) the reduction by 55% of the sulfur oxides in the air emissions and an absolute limitation to 20 tons per day from April to October and 40 tons per day during the balance of the year. *Id*. at 478. The values were adjusted in a subsequent order, Georgia v. Tennessee Copper Co., 240 U.S. 650 (1916), in which the Court also required the company to "keep a weather record showing the direction and velocity of wind, humidity, temperature, and pressure at intervals of six hours," and that the records be "verified by the oath of a responsible officer or employee" of the corporation. *Id*. at 650-51. What is most instructive about the case, yet is puzzlingly omitted from *Chasing the Wind*, is this injunction. It evolved in tandem with the companies' efforts to ratchet down their pollution, but ultimately failed to create a pollution solution. After years of negotiating with the smelters and engaging in a kind of dialogue with the aim of mandating the best achievable technological fix for the pollution at issue, the surrounding communities and environment paid the fullest price. *Cf.* Percival et al., *supra*, at 84 ("The smelter emissions destroyed virtually all vegetation over a vast swath of land, transforming the Ducktown area into a bizarre moonscape of barren red hills that is apparent even today after decades of intensive reforestation efforts."). Furthermore, no part of the injunction ever regulated the emissions based upon the adverse public health effects of sulfur dioxide (SO_2); the limitations mentioned were only levied in an effort to stem the *economic* effects of the emissions.

7. Chasing the Wind, *supra* note 1, at 5.

8. *Chasing the Wind* sees an essential analogy between the common-law forms of plaintiffs bringing suit for the abatement of identified injuries and the later bureaucratic forms wherein public enforcement agencies took regulatory action to abate threats to public health. Because both face the "daunting challenge of establishing a causal linkage between pollution and harm suffered," Chasing the Wind, *supra* note 1, at 49, the phrase the book uses to describe both as pollution control strategies is a "perpetual mobilization regime." *See id*. at 103-23. Take *Tennessee Copper* again. A parallel between it and what Morag-Levine refers to as the "perpetual mobilization regime" of city and state smoke abatement bureaucracies of the early 20th century is even more palpable than the book argues. Morag-Levine calls *Tennessee Copper* "perhaps the most important example of a [best available technology] injunction," *id*. at 100, but nowhere mentions its failures. By contrast, the book observes in lucid detail how the same sort of approach failed when taken by the bureaucrats of smoke inspectorates at the state and local level—what it calls the "perpetual mobilization regime" and what others have associated with the beginnings of the administrative state. That bureaucratic effort failed according to *Chasing the Wind* because the level of vigilance necessary to its success was never sustainable. *See* Chasing the Wind, *supra* note 1, at 115-23; *see also* Alyson C. Flournoy, *Legislating Inaction: Asking the Wrong Questions in Protective Environmental Decisionmaking*, 15 Harv. Envtl. L. Rev. 327 (1991).

9. "[T]he continuing purchase of the view that democratic governance implies substantive limits on the proper ends of regulation accounts for distinctive features of American administrative rule," Chasing the Wind, *supra* note 1, at 37, limitations Morag-Levine argues circumscribes the authority of the state. *Id*. at 38.

10. *Cf. id.* at 3-5 (discussing the requirement of a "nexus between means and ends" in regulation as "the imprint of this common law ideology"); *id*. at 38 ("[J]udges are able to rely on scientific uncertainty and *de minimis* definitions of the relevant . . . harm to render any such sacrifice [by affected individuals] legally invisible.").

11. For an account of how this mindset arose and the predispositions of the tradition-bound reasoning it employs, see J.G.A. Pocock, The Ancient Constitution and the Feudal Law: A Study of English Historical Thought in the Seventeenth Century (2d ed. 1987). Diverse theorists have done various things with this particular mythology and its construction of the rule of law. *Compare* John Rawls, A Theory of Justice 235-42 (1971) (linking the rule of law to a progressive political philosophy) *with* Friederich A. Hayek, The Political Ideal of the Rule of Law 33-45 (1951) (linking the rule of law to a conservative political philosophy). *See also* Richard H. Fallon Jr., *"The Rule of Law" as a Concept in Constitutional Discourse*, 97 Colum. L. Rev. 1, 7-10 (1997); Friederich A. Hayek, The Constitution of Liberty (1960); A.V. Dicey, Introduction to the Study of the Law of the Constitution lv-lxvi, 107-22, 213-67 (Liberty Fund 1982) (8th ed. 1915). Because in democracies, legitimate majorities can usually change even the most fundamental of laws at will, "the Rule of Law" is often identified with some sort of ex ante procedural structure by which legal changes must be staged and validated. *See, e.g.*, Jean Hampton, *Democracy and the Rule of Law*, *in* Nomos XXXIV: The Rule of Law 13, 32-42 (Ian Shapiro ed., 1994). Beyond that, though, the constitutional concept of "the rule of law" today teeters on the verge of disintegration. *Cf.* Fallon, *supra* (propounding four distinct paradigms of "the rule of law" as a constitutional concept). Its meaning is even more muddled when considered against the backdrop of the administrative state. *Cf. id*. at 4 (noting how administrative agencies frustrate many if not most theories of the rule of law and that, to be understood, it must be seen as a "regulative ideal, not a mirror of what is done"). Ronald Cass, an administrative law scholar, recently denied that the concept had become "an entirely empty vessel." *See* Ronald A. Cass, The Rule of Law in America 2 (2001). But the only "core to the concept" he could put his finger on was the "obvious point that freedom from control by the will of others is an enduring human value." *Id*. at 3.

the book's point, though: a cadre of social scientists and historians has already interrogated the mythology behind common-law rights in a concerted effort both to reveal its flaws and internal inconsistencies and to explain its real inner "logic."[12]

Chasing the Wind is about the legitimating myths of our common-law state and how they impede our regulation of air pollution in comparison to those of the "police state" or *polizeistaat* of Germany (and other civil-law systems).[13] Though her comparison has its subtleties, it will suffice for our purposes to reduce its conclusions to the following: where the common-law state presumes the absence of executive and legislative authority to regulate, the police state presumes the existence of that authority. It is, according to *Chasing the Wind*, all about inertia or the initial allocation of a burden of persuasion, so to speak.[14]

Morag-Levine's is a serious comparison which she motivates with the story of a larger transformation in American law. The transformation began at the end of Reconstruction and culminated with the coming of World War II.[15] Of course, that period is but a fraction of Anglo-American legal history. As the book argues, all of this emerged from our common-law minds precisely because one principle was carefully and meticulously observed. The principle is that the enjoining of an "offensive" economic activity, e.g., one that produces "pollution," is exceptional if not outright suspicious unless that activity is proximately linked to overt and obviously *injurious* consequences. I agree with Morag-Levine that this principle is especially relevant to air pollution control to this day. But the relevance of the principle is not where *Chasing the Wind* situates it. For, in the end, the moniker "pollution" itself entails serious normative judgments and, thus, wherever it is "controlled" there has necessarily been made some prioritizing value choice—whether the means employed are risk- or technology-based in nature. I will return to that critique below.[16]

Before going there, though, it must be acknowledged that this "principle" in its simplest form is quite familiar to today's environmental law practitioner.[17] Academic debates

12. One such study, William J. Novak, The People's Welfare: Law and Regulation in Nineteenth Century America (1996), comprises necessary background for *Chasing the Wind*'s assault on the "perpetual mobilization regime." As the book progresses, though, it does seem at times as if Morag-Levine wishes to take issue with our "juricentric" legal system in and of itself. *Cf.* Chasing the Wind, *supra* note 1, at 185 (calling the "court-governed regulatory processes of air pollution control" in the United States the "overarching theme of this book").

13. Chasing the Wind, *supra* note 1, at 67-79. This political-cultural form of explanation is more familiar to constitutional law and philosophy than it is to environmental law, but it is important to environmental law, too. At one point, the two different kinds of state are encapsulated as different constitutive attitudes toward regulation of public health problems like pollution.

> [I]n their respective orientations toward either ends or means, legal processes reveal underlying reactive or proactive conceptions of the authority of the state. "The task of the reactive states," [Mirjan Damaška] writes, "is limited to providing a supporting framework within which its citizens pursue their chosen goals . . . it protects order, and it provides a forum for the resolution of those disputes that cannot be settled by citizens themselves." In contrast, the proactive state "strives toward a comprehensive theory of the good life and tries to use it as a basis for a conceptually all encompassing program of material and moral betterment of its citizens. Whereas in the activist state the controlling image of law is that of the state decree," the reactive state is "first and foremost an adjudicative body."

Id. at 185 (internal citations omitted).

14. In expressing the common-law state's bias against positive, legislative rearrangements of legal entitlements as proof burdens and the requirement of a definite "risk," Morag-Levine contends that there is a "suspicion" of such laws as "undemocratic" and "authoritarian." *Id*. at 27. The concept of a burden of proof in regulation is simple in this context: allocate the burden to those who would regulate and you shall have less regulation; allocate it to those who would build and combust and transact and emit, and you shall have more. But its use as an expression of the common-law state's judgment about democracy itself, *cf. id*. at 188 ("[i]n the absence of a collective vision in whose name government may act forthrightly, a web of evidentiary burdens, fictions, and problem definitions serve to disguise the pollution sacrifices that social existence inevitably requires"), is an overreach. *See infra* notes 132-40 and accompanying text.

15. The concern with that transformation is for its effects on the legitimating myths of our central government and I also think that this ought to be a real concern for environmental lawyers today. Over the period of time in question, our practice of governance went from one of a few short, command-like statutes and a modest executive branch to one of countless programmatic, goal-oriented statutory regimes and millions of "nameless, faceless bureaucrats." *See* Tom Randall, *The Executive Branch: The Blind Eye of Power*, Env't & Climate News, Aug. 2000, at A1 ("How did we get to the point where nameless, faceless bureaucrats, appointed by whichever party currently resides in the White House, make often ill-advised environment decisions?"), *available at* http://www.heartland.org/Article.cfm?artId=9679. I have elsewhere sketched what I believe are the intellectual origins of this transformation and some of its latent effects upon administrative law. *See* Jamison E. Colburn, *"Democratic Experimentalism": A Separation of Powers for Our Time?*, 33 Suffolk L. Rev. 287 (2004). But good research conclusively proving the existence of an "activist state" at the subnational level throughout the 19th century is, to put it mildly, widely available. Novak's study, a tour de force by any standard, shattered whatever was left of the extreme version of the libertarian myth that regulation for the common welfare was rare or somehow exceptional in the 19th century. The "police power" just happened to be situated where such scholarship did not look. *See* Novak, *supra* note 12, at 217-27 (detailing local regulations and nuisance lawsuits aimed at the control of what were known as "offensive trades," businesses that produced noxious odors and other emissions). Another revealing study is David Stradling, Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881-1951 (1999). It focuses almost exclusively on the control of smoke from the combustion of coal and proves just how potent state and local police powers—but also how imperfect their tactics—were in combating the air pollution associated with industrialization. *Chasing the Wind* borrows liberally from both of these studies, yet still exerts much of its energy trying to demolish what must by now be a canard. Try as many historians do to demolish it, the ideology remains respectable that 19th century America was a laissez-faire paradise run by the courts and not by potent "police power" regulations at the state and local level.

16. *See infra* note 156 and accompanying text.

17. The most familiar form of this principle in American environmental law is its relationship to its opposite, the so-called precautionary principle. *See* John S. Applegate, *The Taming of the Precautionary Principle*, 27 Wm. & Mary Envtl. L. & Pol'y Rev. 13 (2002) (recognizing as foreign to American law the precautionary principle, the notion that business activity must be justified as compatible with public health and welfare to be permitted). Distinguish, though, between the principle that public law ought not to prohibit conduct unless it poses real risks and the further notion of a high burden of proof thereon. Long ago a particularly shrewd panel of judges refused to entangle agencies like the U.S. Environmental Protection Agency (EPA) with the insurmountable obstacles associated with scientific standards of proof in setting pollution control policy.

> It bears emphasis that what is herein described as "assessment of risk" is neither unprecedented nor unique to [environmental] law. To the contrary, assessment of risk is a normal part of judicial and administrative fact-finding . . . . [P]etitioners seek to constrict the usual flexibility of the fact-finding process. Petitioners argue that the Administrator must decide that lead emissions "will endanger" the public health solely on "facts," or, in the words of the division majority, by a "chain of scientific facts or reasoning leading (the

about air pollution control policy usually express it in terms of the pervasiveness of "scientific uncertainty."[18] Broadly speaking, such scientific uncertainty is key wherever science and the results of scientific inquiry are meant to resolve some question of public policy, either by establishing causal connections not perceptible by lay sensibilities or by making predictions based upon probability rather than, say, superstition. It can be just as key in the legislating of prospective rules as it can be in the settling of a common-law lawsuit. Furthermore (and this is something virtually any reader of *Chasing the Wind* will admit), this type of uncertainty is of signal importance to pollution control.[19]

> Administrator) ineluctably to this conclusion . . . ." Petitioners demand sole reliance on scientific facts, on evidence that reputable scientific techniques certify as certain. Typically, a scientist will not so certify evidence unless the probability of error, by standard statistical measurement, is less than 5%. That is, scientific fact is at least 95% certain.
>
> Such certainty has never characterized the judicial or the administrative process. It may be that the "beyond a reasonable doubt" standard of criminal law demands 95% certainty. But the standard of ordinary civil litigation, a preponderance of the evidence, demands only 51% certainty. A jury may weigh conflicting evidence and certify as adjudicative (although not scientific) fact that which it believes is more likely than not. . . . Nonetheless, the ultimate finding will be treated, at law, as fact and will be affirmed if based on substantial evidence, or, if made by a judge, not clearly erroneous. The standard before administrative agencies is no less flexible. Agencies are not limited to scientific fact, to 95% certainties. Rather, they have at least the same fact-finding powers as a jury, particularly when, as here, they are engaged in rulemaking.

Ethyl Corp. v. EPA, 541 F.2d 1, 28 n.58, 6 ELR 20267 (D.C. Cir. 1976) (internal citations omitted).

18. *Cf.* Christopher Stone, The Gnat Is Older Than Man: Global Environment and Human Agenda 24 (1993):

> We are only beginning to learn how the world works. Our ignorance is not only about the dynamics of globe-spanning climate and current. Scientists have only started to inventory the world's forests and monitor the thickness of the ice caps. As for biodiversity, we do not know how many species there are to imperil.

The agenda-setting effects of these uncertainties where agencies and courts must interact are legendary. The literature on the agenda-setting effects of scientific uncertainty in pollution control is voluminous to say the least. *See, e.g.*, Stephen Breyer, Regulation and Its Reform (1982); Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 Colum. L. Rev. 1613 (1995); Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 Yale L.J. 1981 (1998); Howard Latin, *Good Science, Bad Regulations, and Toxic Risk Assessment*, 5 Yale J. on Reg. 89 (1988); Stephen G. Breyer, Breaking the Vicious Circle: Toward Effective Risk Regulation (1993) [hereinafter Breyer, Breaking the Vicious Circle]; Cass R. Sunstein, Risk and Reason: Safety, Law, and the Environment (2002). There is undoubtedly a practical reality being described here and *Chasing the Wind* leverages it to maximum effect. A report two decades ago by the National Academy of Sciences isolated and identified some 50 decision points in a typical "risk assessment" where a choice "among several scientifically plausible options" is required before the risk assessment can be completed. National Research Council, Risk Assessment in the Federal Government 5-8 (1983). That is, of course, where moral and/or political choices—where *value priorities*—become pivotal. But there is also a social-psychological or cultural dimension to this reality driving debates about pollution control and it is that dimension with which *Chasing the Wind* ultimately seems more concerned. *See infra* Part III.

19. *See, e.g.*, Latin, *supra* note 18. It might even be agreed further that it is a kind of latent effect from common-law concepts of legitimate legislative and/or executive authority. Morag-Levine describes Justice John Marshall Harlan's concurrence in *Tennessee Copper* as a continuation of his debate with Justice Holmes over the nature of governmental legitimacy so famously associated with the Lochner v. New York, 198 U.S. 45 (1905), decision. *See* Chasing the Wind, *supra* note 1, at 63-64 ("[T]he exchange is [best] read as the continuation of an on-going debate between Justices Harlan and Holmes regarding the origin and scope of the state's authority to regulate . . . splitting on the necessity of proof of harm to the validity of the state's exercise of regulatory police power.").

Sections B and C of this part lay out this argument as it is developed in the book.

B. The Trouble With a Common-Law State: The Liberty to Pollute

After Chapter 1 quickly surveys the "plethora of regulatory programs" that now "target[s] synthetic chemicals in our air, drinking water, food products, and workplaces,"[20] *Chasing the Wind* focuses its considerable energy in Chapters 2 through 6 on how those programs became the legal regimes they are today. The overarching framework of the explanation is conceptual, even jurisprudential: "Opposing conceptualizations of the police power—whether limited by common law or absolute—divided nineteenth century legal opinion, with the demand for means-end rationality serving precisely as the line separating the two positions."[21] What this tug of war resulted in was a hybridized version of the common-law state. Through a process of upheaval, elements of two very different visions of governance were synthesized into what we call the "administrative state."[22]

State and federal legislators came under intense pressure from their constituents to control air pollution beginning in about the 1890s.[23] "Unable to make the thousands of detailed decisions entailed by prescriptive regulation, Congress [was] forced to delegate the actual setting of standards to subcommittees and agencies, which have themselves become beholden to economic and ideological interest groups."[24] But instead of regulation of air pollution by the

20. Chasing the Wind, *supra* note 1, at 9.

21. *Id.*

22. That process is a story about competing visions of freedom, something far more familiar to constitutional law and jurisprudence than to pollution control law. Straddling traces this transformation at the local level quite effectively, deftly unearthing the doings of smoke-abatement Progressives and tracing the smoke-abatement movement into the 1950s. *See* Stradling, *supra* note 15, *passim*. City after city enacted smoke abatement ordinances and created inspectorates for their enforcement. *Id.* at 71 ("The persistent public support for effective municipal and judicial action in the fight against smoke in Chicago mirrored changes occurring in many cities . . . . The heightened demand for effective municipal regulation led not just to greater activism by city officials and to increased support from judges, but also to a new generation of ordinances passed in cities around the nation."). Ironically, though, even with powerful bureaucracies tasked with the improvement of air quality, the most dramatic cuts in pollution came only after massive fuel switching by the polluters. *Id.* at 182 ("From the 1910s though the 1930s, engineering smoke experts had predicted that scientifically operated municipal departments issuing education and advice would solve the problem of smoke pollution—even if they did so gradually. The experts were mistaken. Real relief came only with significant changes in fuel use, as urban America became less dependent on soft coal in the mid-twentieth century.").

23. *See, e.g.*, Stradling, *supra* note 15, at 79-80, 105.

24. Chasing the Wind, *supra* note 1, at 28. Morag-Levine finishes that "[i]n place of a robust pluralist process, the centralized regulatory state has . . . spawned a new form of factional domination within functionally specialized agencies," *id.*, something that I argue below is just as much a function of the improvements Morag-Levine sug-

dictates of Article I, §7, legislative responses like the CAA simply delegated the authority to do so to the U.S. Environmental Protection Agency (EPA), which was in turn to be kept in check by judicial review of the regulations it promulgated.[25] Courts adapted from ruling directly to ruling indirectly, allocating power in the constitutionally hybridized administrative state. Statutorily created agencies sought to develop regulatory policy consistent with their mandates but were dominated by the dynamics of lawsuits and litigants, burdens of proof, rules of evidence, and, of course, the generalist (ignorant) finder of fact—judges and juries. The separation of powers that emerged regulated the interface between litigants who operated in courts of particular jurisdictions and experts who operated at a more systemic level.

Again, much of this is well-tread ground[26] and it is covered here on the way to a destination very familiar to constitutional lawyers. Morag-Levine's jurisprudential claim about American air pollution control policy is that its hybridized institutions are a function of past cultural-legal biases more than they are of political or practical necessity, normative priority, or rationality per se.[27] Because nuisance law exercised so formative an influence over our concept of the "valid public purpose," the argument runs, when statutory controls finally were created the benchmark used was the "public nuisance" lawsuit itself.[28] This entailed regulating proven harms—and perhaps *only* proven harms—but it also brought along a bias against going through the trouble of regulation at all unless real health benefits were likely.[29]

It may fairly be said that the concepts of liberty heralded by that generation of jurists—known variously as the "freedom of contract" and "economic substantive due process"[30]—overemphasized certain "inherent" limitations upon the legislative power.[31] Indeed, *Lochner v. New York*[32] itself is often used to illustrate how courts can pervert their powers of judicial review and use them to handcuff legislatures and publics, preventing popular government from serving the public health and welfare. For most constitutionalists, the case is a sort of shorthand for a family of judicial hostilities toward legislatures "adjusting benefits and burdens of economic life to promote the common good."[33] But

gests as it is of centralization. *See infra* notes 201-14 and accompanying text.

25. It seems as if you must go to a critic of delegation for the best descriptions of its causes and existence. David Schoenbrod, *Goal Statutes or Rules Statutes: The Case of the Clean Air Act*, 30 UCLA L. Rev. 740, 742-82 (1983) (1970 CAA Amendments product of Congress' evading tough questions by delegating policymaking authority to EPA); David Schoenbrod, *Politics and the Principle That Elected Legislators Should Make the Laws*, 26 Harv. J.L. & Pub. Pol'y 239, 244-50 (2003) (arguing that broad delegation to agencies is a Progressive Era legacy). While I do not share Schoenbrod's presumptive disdain for wholesale delegations of authority, I do share his view of the legislative process and its structural bias toward delegation in many circumstances. *See* Colburn, *supra* note 15. More recently, some empirical work has been attempted in an effort to predict those circumstances in which delegation of policymaking authority is most likely. *See* David Epstein & Sharyn O'Halloran, Delegating Powers: A Transaction Cost Politics Approach to Policymaking Under Separate Powers (1999).

26. *Chasing the Wind* even includes a brief nod to the luminaries of this debate 30 years ago. Chasing the Wind, *supra* note 1, at 28 (citing Theodore J. Lowi, The End of Liberalism: Ideology, Policy, and the Crisis of Public Authority (1969); Ralph Nader & John C. Esposito, Vanishing Air: The Ralph Nader Study Group Report on Air Pollution (1970)).

27. *Cf.* Chasing the Wind, *supra* note 1, at 185 (linking "formal legal contestation" to an "unpredictable method of governance and dispute resolution" that predominates in American pollution control).

28. *Id*. at 71-85. The further claim is that "[i]n tying [valid regulation of pollution] to the establishment of nuisance, rather than to continental-style police power, the common law state ultimately conferred upon judges the power to determine what counts as regulatory reasonableness." *Id*. at 73.

29. The substantive standard for nuisance was a burden of proof placed squarely on the shoulders of the plaintiff (or governmental entity) filing suit and that certainly had and has the effect of deterring some suits from being filed and/or litigated. But recognize that the proof burden in a common-law action is rather different from some "condition precedent" on various forms of public law taking the form of legislation or regulations. In making her claim, Morag-Levine is put to drawing a hard distinction between so many "absolutist—if unimplemented—promise[s] of complete protection against risk" supposedly embodied in federal regulations of air pollution and the comparatively "trivialized" world of the "residual aesthetic annoyances" which have been left to the devices of common-law nuisance alone. I found this the most unsatisfying line of argument in the book, given the nature of science-based regulation. Regulation tied to actual risk is at least as likely to control things that ordinary people never know put them at risk as it is to ignore those things they find extremely bothersome but which are relatively innocuous. *See generally* David M. Driesen, *Getting Our Priorities Straight: One Strand of the Regulatory Reform Debate*, 31 ELR 10003 (Jan. 2001).

30. Lawrence Friedman, A History of American Law (1979); Morton Horwitz, The Transformation of American Law, 1865-1960 (1994); Cass R. Sunstein, After the Rights Revolution: Reconceiving the Regulatory State (1990). In this connection, standard legal histories in the United States routinely denounce a period of "judicial activism" known as the "*Lochner* Era." *Chasing the Wind* breaks no new ground on this score, either: it assumes the general agreement that courts overzealously advanced a certain libertarian agenda and does not critically analyze that consensus at all. The period is variously described as having extended from about 1895 to about 1920.

31. But a better question may be whether we ever actually *exited* that era. *See* Hadley Arkes, The Return of George Sutherland: Restoring a Jurisprudence of Natural Rights (1994). In that connection, setting the boundaries around such eras tends to be the most troubling task in describing them. Novak, in step with convention, picks the half century from 1877 to 1937. Novak, *supra* note 12, at 247 ("Between 1877 and 1937 . . . American conceptions of state power, individual rights, and the rule of law were fundamentally transformed."). Barry Cushman's sensitive account of the police power and its interface with the liberty of contract/substantive due process rights treats a similarly lengthy period of time and questions the existence of a radical break with tradition prior to or following the era. *See* Barry Cushman, Rethinking the New Deal Court: The Structure of a Constitutional Revolution (1998).

32. 198 U.S. 45 (1905). "In reviewing state and federal economic regulation, the [Court] closely scrutinized both the ends sought and the means employed in challenged legislation." Laurence H. Tribe, American Constitutional Law §8-23, at 56 (2d ed. 1988). *Cf. id*. at 569 ("*Lochner* itself provides the best example of . . . strict and skeptical means-ends analysis."). *Chasing the Wind*, for example, goes into depth in critiquing the *Lochner* majority, taking its cues from several very popular demolitions of *Lochner* as "incompatible" with the modern "administrative state." Chasing the Wind, *supra* note 1, at 27-32 (citing Cass R. Sunstein, Lochner*'s Legacy*, 87 Colum. L. Rev. 873 (1987); Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. Chi. L. Rev. 1 (1995)). In reading it, I wondered whether it was a little overdone.

33. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124, 8 ELR 20528 (1978). Takings jurisprudence—from which *Penn Central* hails—is our own era's version of *Lochner* scrutiny. Takings problems have always been the counterpoint to simplistic theories about the "police power" and the modern Court's supposedly limitless willingness to abet public impositions upon the freedoms of "private" individuals. *Cf.* Euclid v. Ambler Realty Co., 272 U.S. 365 (1926) (Sutherland, J.) (upholding as a valid exercise of the police power a municipality's zoning ordinance classifying city into six use districts hierarchically ordered from least to most restrictive). Thus, Justice Holmes—whose famous dissent in *Lochner* ridiculed the majority's crabbed interpretation of a state's police power—actually wrote for the majority in Pennsylvania Coal v. Mahon, 260 U.S. 393 (1922). In that case, the Court reversed the state as having gone "too

what it represents in the long sweep of Anglo-American history is a form of critical scrutiny of legislative and executive action on behalf of an especially malleable and politically freighted constitutional concept: liberty.

Constitutional courts empowered to scrutinize the validity of a statute and call into question the legislature's purposes and motives (real or supposed), its selected means, and the rational connection(s) if any between them may have a rather tarnished constitutional history lately.[34] Depending upon the conceptualization of liberty at issue, they are one short step removed from the *Lochner* U.S. Supreme Court which, as mentioned, is generally perceived to have been usurpative and even positively harmful to some segments of society.[35] Although in theory the scrutinizing power of such courts is meant only for those few instances where legislative mistakes are obvious and clear infringements on "ordered liberty," in practice it always seems to tend toward a kind of "jurocracy."[36] Legal scholars on the left today are usually loathe to accept this, but the liberty of *Lawrence v. Texas*[37] and *Roe v. Wade*[38] is, in an important sense, deeply connected to the liberty of *Adkins v. Children's Hospital*,[39] *Coppage v. Kansas*,[40] and *Lochner*.[41]

What trouble is this for air pollution control law? *Chasing the Wind* begins from the premise that "*Lochner*'s Legacy"—"the underlying notion that the legitimacy, if no longer the constitutionality, of regulatory interventions demands a proven nexus between means and ends"[42]—still explains the failures of our regulatory state. On one level, the premise is unexceptionable: agencies like EPA set their clocks by the doctrines of judicial review. But while the *Lochner* era's impact on our legal culture ought not to be ignored in a study of this breadth, I think Morag-Levine's own research (and much of the research on which she relies) shows how at least one conception of pollution control in our traditions creates a dichotomy between "liberty" and state functions like the protection of public health.[43] Part I.C. suggests why this is a real predicament.

C. Government by Injunction

Well before there were legislated safeguards for public health and welfare in England or America, there were common-law doctrines of property and tort. The Anglo-American tort doctrines that did much of the work to regulate air pollution from the beginning of the industrial revolution until well into the 20th century were those of nuisance and trespass. Though it grew to include many branches (each with its own distinctive twists and turns),[44] the trunk of nuisance law was the private cause of action in nuisance leading to an injunction.[45]

far" in its regulatory efforts (upholding a rather coarse use of property/contract rights by a much wealthier and more powerful corporation). But Holmes' opinion was characteristic of the jurisprudence at the time for at least this point: the so-called police power is inherently limited by rights-based restrictions. *Cf. id*. at 416 ("We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change.")

34. Limiting the inquiry to the United States, as *Chasing the Wind* shows, proves up several quite inauspicious moments in history. *See* Chasing the Wind, *supra* note 1, at 78-85.

35. Chasing the Wind, *supra* note 1, at 32 (*Lochner* scrutiny usurpative); *see also* Sunstein, *supra* note 30, at 11-19 (*Lochner* scrutiny harmful to many segments of society such as laborers, consumers, immigrants, etc.). Much depends on the factual suppositions surrounding the claim(s) of liberty advanced. *See generally* Kenneth L. Karst, Legislative Facts in Constitutional Litigation, 1965 Sup. Ct. Rev. 75. Thus, not all scholars writing in the field regard *Lochner* as usurpative. *See, e.g.*, Randy Barnett, Restoring the Lost Constitution: The Presumption of Liberty (2004).

36. *See* Alexander Bickel, The Least Dangerous Branch: The Supreme Court at the Bar of Politics (1962).

37. 123 S. Ct. 2472 (2003) (law criminalizing sodomy held unconstitutional deprivation of substantive due process).

38. 410 U.S. 113 (1973) (law prohibiting all abortions except those necessary to save the life of the mother held unconstitutional deprivation of right of privacy).

39. 261 U.S. 525 (1923) (law setting minimum wage for women held unconstitutional deprivation of freedom of contract).

40. 236 U.S. 1 (1915) (law prohibiting employers from requiring employees to enter contract promising not to join a union held unconstitutional interference with the freedom of contract).

41. 198 U.S. at 45 (law setting maximum hours of work in a bakery unconstitutional deprivation of substantive due process). It is easy enough to distinguish these cases from each other, but as a matter of constitutional conceptual categories they are quite analogous: the liberty of an individual was deemed harmful to the society and a legislating majority prohibited the subject conduct, only to be reversed on constitutional grounds.

42. Chasing the Wind, *supra* note 1, at 32.

43. It is, I argue below, a predicament far more interesting than the old *Lochner* blame game. It may be perfectly true to observe that courts have often become too involved with the selection of means and ends in the regulatory state. And it may be perfectly true to say that judicial review on behalf of any concept as indefinite and freighted as "liberty" will frequently go awry (at least insofar as the legislating majority is concerned). It is something else entirely, though, to simplify phenomena as large as the institutional structure of American pollution control policy to either of those two propositions—or, indeed, to deduce anything further from them at all. In this respect, *Chasing the Wind* is reminiscent of Shep Melnick's careful study of this question completed in 1983. One of his primary conclusions was that "court action under the [CAA] has not improved regulatory policy or the performance of regulatory agencies." R. Shep Melnick, Regulation and the Courts: The Case of the Clean Air Act 387 (1983). His recommendation: "[J]udges should show more deference to administrators and less confidence in their own ability to reform complex regulatory programs." *Id*. Two decades later—much of which was marked by highly deferential judicial review of administrative action—it is not so clear Melnick's recommended changes have been that much of an improvement. *See infra* Part III.C.

44. The action against "public" nuisance is no doubt a relevant aside here. As land uses resulted in injuries to rights held by the public in common, i.e., to the public watercourse, etc., the private nuisance action came under pressure to adapt. A class of actions for public nuisance eventually emerged to be prosecuted by any member of the public. *See* Novak, *supra* note 12, at 136-48. The private action for nuisance usually pitted one neighbor (broadly defined) against another, each of whom claimed a use of their land that was in some way incompatible with the other. This forced a court to decide whose use of the adjacent lands would be preferred. The famous land use case and one Morag-Levine spends a good deal of time with is Aldred's Case, 77 Eng. Rep. 816, 9 Co. Rep. 57(b) (K.B. 1611). The suit involved the odors of a pig sty and an offended neighbor. *Aldred's Case* exerted a massive influence on the development of the doctrine in the American industrialization. *See generally* Robert G. Bone, *Normative Theory and Legal Doctrine in American Nuisance Law: 1850 to 1920*, 59 S. Cal. L. Rev. 1101 (1986). *See* Chasing the Wind, *supra* note 1, at 40-56 (linking the influence of *Aldred's Case* to early regulatory responses to the smoke from coal combustion). The court was forced to prefer a use because, being adjacent to each other, the two uses were, in a sense, incompatible. Less typical of the early English version of the doctrine was an action for money damages. The American version of the doctrine evolved to prefer damages to injunctions—for reasons that still divide the people writing about it. *See infra* notes 60-66 and accompanying text.

45. The three leading casebooks on environmental law all begin with introductions describing private actions in nuisance and contrast that regime of air and water pollution control to a "regulatory" or "modern statutory" approach. *See* Percival et al., *supra* note 6, at 60-85;

This doctrine of tort exerted a profound influence upon the property rights of landowners. From as early as the 17th century, English common law had grafted a limiting principle on property in an estate in land known as *sic utere tuo, ut alienuum non laedas*—"use your own so as not to harm another."[46] Morag-Levine traces this principle and the path it took through different industrializing (and industrialized) contexts with the concept of "harm," that is, what common-law judges recognized as a threat to or injuring of other people's property.[47] It is a crooked path.

The *sic utere* maxim and nuisance doctrine itself have always left unresolved the truly hard questions they pose for property owners and courts. The real question is what constitutes a proscribed "harm"? Neighbors use their property all the time in ways that annoy, offend, and harass each other. But what degree of "injury" *ought* to be present before a court will intervene and enjoin the property uses of one neighbor at the behest of another? *Chasing the Wind* deftly argues just how pivotal and how controversial the setting of that legal threshold has been throughout the history of the doctrine of nuisance, if not throughout the history of industrialization.[48] Experience thus led to the second most difficult question: once a nuisance has been found, shall the remedy automatically be an injunction?[49] Eventually, American courts answered with a resounding "no," but there has always been a tinge of moral controversy surrounding their reasons for doing so.

ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 157-217 (2d ed. 1998); ROGER W. FINDLEY ET AL., CASES AND MATERIALS ON ENVIRONMENTAL LAW 273-85, 398-406 (6th ed. 2003).

46. CHASING THE WIND, *supra* note 1, at 41. *Aldred's Case* has often been interpreted as an "absolutist" holding in the sense that, upon showing an injury is occurring from a neighbor's use, the plaintiff is automatically entitled to an injunction preventing the use. *Chasing the Wind* follows a more sensitive tradition and challenges this interpretation as overly simplistic, arguing that the nuisance doctrine in England also evolved to be quite context-dependent. *Id*. at 40-48.

47. Chapters 5 and 6 of *Chasing the Wind* explore "judicial responses to air pollution, 1869-1970," i.e., several carefully chosen nuisance actions and their outcomes, and the anti-smoke movements in England and America from the 1890s to the 1940s, respectively. *Id.* at 86-123. Change truly was the only constant, but the older the Latin phrase grew, the more venerated it became, ultimately being shortened to just "*sic utere*" and appearing as legal jargon far and wide. Morag-Levine includes in a footnote a barbed quotation about Sir Edward Coke and the origin (and purpose) of his Latin "maxims." *Id*. at 201 n.22 ("As a rule of thumb it is well to remember that sentences beginning 'For it is an ancient maxim of the common law,' followed by one of Coke's spurious Latin maxims, which he could manufacture to fit any occasion and provide with an air of authentic antiquity, are apt to introduce a new departure . . . .") (quoting SAMUEL EDMUND THORNE, SIR EDWARD COKE, 1552-1952, at 7 (1957)).

48. *Chasing the Wind* examines nine American cases from 1869 to 1970. A fair amount of research done long before *Chasing the Wind* suggested that nuisance law actually had a kind of zoning function, allocating various activities/land uses to their "appropriate" place(s). *See, e.g*., Joel Franklin Brenner, *Nuisance Law and the Industrial Revolution*, 3 J. LEGAL STUD. 403 (1974); Robert L. Rabin, *Nuisance Law: Rethinking Fundamental Assumptions*, 63 VA. L. REV. 1299 (1977); Jeff L. Lewin, Boomer *and the American Law of Nuisance: Past, Present, and Future*, 54 ALB. L. REV. 189 (1990). Nineteenth century England, though it did not necessarily favor pollution, "did favor industrialization" and was "anxious not to burden industry with damage actions." Brenner, *supra*, at 408.

49. In fact, the cottage industry in law and economics of describing "efficient" remedies used the nuisance injunction as its initial product launch. *See* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

1. American Nuisance: Reticence and the Injunction

American courts have been notoriously contextual when it comes to deciding whether to award injunctions or damages.[50] Through a series of case studies comparing and contrasting the outcomes and reasoning, Morag-Levine argues that our common-law courts usually took a quite permissive attitude toward the pollution they examined. This critique is twofold: (1) that de minimis exceptions have always been used to exclude a variety of forms of air pollution from the very definition of nuisance; and (2) that courts have come to favor damage remedies for proven nuisances over injunctions. Courts of 19th and 20th century England and America did share a certain affinity for a burden of proof and a reticence toward their own equitable powers.[51]

American nuisance law's reticence toward the injunction takes on a feel of moral weakness after reading *Chasing the Wind*. Indeed, the book makes the whole doctrine seem an outright failure to public health and welfare and perhaps it was (and is). Morag-Levine's examination of the case of *Versailles Borough v. McKeesport Coal & Coke Co.*,[52] a Pennsylvania state court suit from the 1930s, for example, ends in a methodical and exasperating description of the

50. Lewin, *supra* note 48, at 212-14. Most of this notoriety, though, attaches to American nuisance law *after* Boomer v. Atlantic Cement Co., 257 N.E.2d 870 (N.Y. 1970), and even that notoriety does not necessarily pertain to the most controversial aspect of nuisance law, i.e., "whether the utility of the defendant's conduct can justify the infliction of nuisance damages without compensation." Lewin, *supra* note 48, at 220 ("This issue was not addressed [in Boomer] because the defendant did not appeal the trial court's finding that the cement plant was a nuisance, a finding based solely on the cement plant's substantial interference with the plaintiffs' use and enjoyment of their properties . . . .").

51. By characterizing plaintiffs' injuries as temporary and/or minor, the courts quite literally deprived them of any redress of those injuries. Thus, whatever courts have regarded as so-called trifling inconveniences, CHASING THE WIND, *supra* note 1, at 56, necessarily suffered by neighbors from time to time—and, according to Morag-Levine's evidence, trifling can be truly trifling or just legally trifling—have historically been excluded from the law of nuisance. This is the disarming simplicity of the nuisance principle. But it is a simplicity that quickly gives way to maddeningly unstable measurements of degree. *See, e.g*., RESTATEMENT (SECOND) OF TORTS §822 cmt. g (1978):

> It is an obvious truth that each individual in a community must put up with a certain amount of risk in order that all may get together. The very existence of an organized society depends upon the principle of "give and take, live and let live," and therefore the law of torts does not attempt to impose liability or shift the loss in every case where one person's conduct has some detrimental effect on another. Liability is imposed only in those cases where the harm or risk to one is greater than he *ought* to be required to bear under the circumstances at least without compensation.

(Emphasis added.) The threshold separating actionable from nonactionable injuries has always been malleable depending on the locality in issue.

52. 83 PITTSBURGH L.J. 1935 (Pa. 1935). CHASING THE WIND, *supra* note 1, at 95 & n.32. The court there held that

> it had no evidence "to warrant the assumption that the health of anyone [wa]s being imperiled" and proceeded to define the pertinent injury in terms of annoyance posed by "dust," "smoke," and "odors"—an annoyance "trivial in comparison to the positive harm and damage that would be done to the community were the injunction asked for granted."

filthy conditions at issue.[53] But the reader gets the sense that the holding in *McKeesport* was less the reflection of a de minimis injury being marginalized than it was of a court's wish not to close down a coal mine—a very unpopular and uneconomic thing to do, then as now—absent the most compelling proof that the mine was irremediably "harmful."[54] And this trap has always commended the damages award for its superior flexibility.[55]

The question, then, is whether nuisance's aversion to the injunction is really analogous to our current pattern of gridlock and "paralysis by analysis" in pollution control.[56] Admittedly, the equity suit for an injunction was much more likely to succeed where the offending use was encroaching upon another, more dominant pattern of use. That is, judges in nuisance actions tended toward a kind of zoning regime or "separation equilibrium" in which the injunction against the commercial use functioned less as a prohibition than as an order to relocate.[57] As long as some other locale was available for the subject use, injunctions flowed fairly steadily. Troubles arose when space grew limited and relocation became less ready an option.[58] Eventually the interaction of space limits (in the eastern United States and much of Great Britain) along with "urban growth dynamics . . . spurred the encroachment by one land use upon another."[59] That, in turn, invited the approach most often identified with the American nuisance injunction today: the balancing of hardships and/or utilities as between the plaintiffs and defendant.[60]

By the time the most famous American decision showcasing this modern balancing regime came out, the rule had long been that injunctions were somewhat less favorable than damage awards and that nuisance had essentially become a morally neutral legal term.[61] *Chasing the Wind* sees this as a long continuation of a de minimis "trifling inconveniences" idea stacking the deck insurmountably against the judicial control of air pollution.[62] But what I think this actually shows is the role the nuisance regime itself played in the emergence of a nationally uniform structure with scientific expertise as its regulatory basis.

2. Scientific Uncertainty and the Causes of the Administrative State

If the tension was between the liberty to pollute and regulation to protect the public health as Morag-Levine contends, then it continued right into the state of statutes and bureaucrats unabated.[63] But if the tension was something subtler, say, between the common-law judge's ability to isolate and control only that part of a person's conduct putting the public health in jeopardy versus an expert agency's ability to do

At issue was the very disgusting practice of incinerating in an open burn pit all of the various wastes from a coal mining operation, the exhausts and fumes of which were opaque, annoying, and toxic. *Id.*

53. The *McKeesport* case arose in a heavily industrialized area of western Pennsylvania and involved the burning piles from coal mining wastes (known as "gob piles"). *Id*. at 94. "Large gob piles were constructed immediately adjacent to mining tipples as the primary means of disposing of mining by-products." When one of the piles caught fire, the surrounding town(s) would bear a heavy burden of smoke, ash, fumes, and other hazards. In the *McKeesport* incident, a lawsuit by town residents became a battle of witnesses some who "collectively spoke of suffering irritated throats, hay fever, asthma, coughs, and other symptoms as a result of the fumes" testifying for the plaintiffs and others "who insisted that the pollution caused them no ill effects" testifying for the defendant. *Id*. at 94-95.

54. Concededly, at that point in our scientific history the proof for the requisite findings of fact may not have been that widely available, but one suspects it *might* have been available with the right counsel (and/or judge) assigned. Novak's study is instructive on this point. Whatever else a common-law state implied, it included "localism" as well as "a social conception of rights and duties in a well-regulated society." Novak, *supra* note 12, at 237. That is, of course, something very different from the police state tradition, and yet it is nevertheless intimately linked to the notion of *salus populi* and the individual's duty not to use his property in a way that unduly injured others. "In contrast to the modern ideal of the state as centralized bureaucracy, the well-regulated society [of the 19th century] emphasized local control and autonomy. Indeed, the federal centralization of public economic, morals, and health authority signaled the decline of well-ordered governance." *Id*.

55. For example, the strict balance of utilities test, it should be emphasized, resulted in the uncompensated destruction of many people's peaceful enjoyment of their land as well as the risking of their mental (if not physical) wellbeing. *Cf*. Carpenter v. Double R Cattle Co., 701 P.2d 222 (Idaho 1985) (Bistline, J., dissenting):

> If the odoriferous quagmire created by 9,000 head of cattle is not a nuisance, it is difficult for me to imagine what is. . . . The majority's rule today [no injunction] overlooks the option of compensating those who suffer a nuisance because the interests of the community outweigh the interests of those afflicted by the nuisance.

56. The book argues at length how "different considerations govern judicial decisions about remedies in suits for common law damages versus equity suits for injunctions." Chasing the Wind, *supra* note 1, at 40-47, 86-102. But Lewin reports that "[a]s of 1969, the balance of utilities test [for granting or denying an injunction] had been adopted in at most eight states, and perhaps in as few as five." Lewin, *supra* note 48, at 214 n.123. "The 'utility of the defendant's conduct' was expressly a factor in at most another eight states, and probably in no more than five . . . ." *Id*.

57. *See* Chasing the Wind, *supra* note 1, at 46-47, 86-102; Brenner, *supra* note 48, *passim*.

58. Chasing the Wind, *supra* note 1, at 47 ("The separation of industrial from residential area remained a sensible planning ideal, but it was extremely difficult to implement . . . as the industrial revolution got underway[.]"). The CAA's national air quality standards function as a kind of site-shifting influence and would do so even more without a rather controversial subprogram added to the Act in 1977. *See* Craig N. Oren, *Prevention of Significant Deterioration: Control Compelling Versus Site Shifting*, 74 Iowa L. Rev. 1 (1988).

59. Chasing the Wind, *supra* note 1, at 47.

60. Section 826 of the First Restatement of Torts (1939) required—in effect—that plaintiffs to prove that the gravity of the harm caused by the defendant's conduct exceeded the social utility of that conduct. *Cf*. William M. Landes & Richard A. Posner, The Economic Structure of Tort Law 49 (1987). How this *Restatement* standard was eventually replaced with a preference for the awarding of damages is recounted in Robert E. Keaton, *Restating Strict Liability and Nuisance*, 48 Vand. L. Rev. 595 (1995).

61. Chasing the Wind, *supra* note 1, at 87. The case was Boomer v. Atlantic Cement Co., 257 N.E.2d 870 (N.Y. 1970). In it, a cement factory was emitting several forms of air pollution that were clearly responsible for injuries suffered by several downwind landowners. But it was ordered only to pay economic damages to the landowners. A passionate dissent argued that an injunction shutting the plant down was far more appropriate, the economic consequences—in terms of lost employment, productive use of the factory, shareholder value, etc.—notwithstanding. *Id*. at 223-31.

62. "Far from offering a paean to the common law's air-pollution regime, the *Boomer* opinion highlighted the inherent limits of judicial remedies in this domain and the need for proactive statutory and administrative air-pollution regulation." Chasing the Wind, *supra* note 1, at 87.

63. As Cass Sunstein observed over a decade ago, the rise of administrative agencies "produced a dramatic change in the fabric of the national government, as well as in the basic conception of the relationships between the states and the federal government and the citizen and the government in general." Sunstein, *supra* note 30, at 24. Sunstein describes the emergence of no fewer than 30 new agencies in the two decades of the 1930s and the 1960s alone, *id*. at 23-26 (tbl. 1), and suggests we "use the term 'New Deal Constitutionalism' to

so, *Chasing the Wind* never goes far enough in its critique of the administrative state. And, as the CAA so well illustrates, it was regulation of all forms predicated upon superior expertise—the positivistic estimation of "risk"—which Progressives and New Dealers sought.

It must be admitted that any pollution control regime can be devastated by uncertainty. It can sever cause-and-effect relationships underlying the award of damages, the crafting of injunctions, and the writing of prospective regulations, alike. The link between human-emitted "pollutants" and the risks they create, e.g., increased cancer rates, warming global temperatures, etc., can only be constructed with actual proof. But the very concept of risk is an inherently scientific concept of probability and induction. It means to fix likelihoods and make positivistic predictions linking an antecedent (emissions) and a consequence (disease, famine, etc.). Such cause-and-effect predictions do constitute a major variable in prospective regulatory controls of threats to public health, like pollution. But, then, if that is true, it should be said that it was the unreconstructed generalist lawmaker—legislator, judge, municipal official, president, etc.—who did the most to legitimate the expert administrative agency as a law making institution throughout the Progressive and New Deal eras. Part II shows why.

II. The CAA: More Symbol Than Substance?

When Morag-Levine finally turns her attention to critiquing the cornerstone of administrative state air pollution control, her study loses its momentum. Indeed this is the deep weakness of *Chasing the Wind*. It professes to be a critique of modern American air pollution control policy including the CAA. In reality, though, the book focuses upon tiny fractions of these things. Part II of this Article sketches the small component program of the Act actually treated in *Chasing the Wind*. Parts II.A. and B. seek to capture the heart of the book's criticisms by placing them in the context of a broader sample of this statutory behemoth. Finally, Part II.C. examines the improvements *Chasing the Wind* recommends—a turn to "technology-based" mandates instead of "risk-based" mandates—and finds that, in the abstract, such advocacy today is virtually pointless.

A. Section 112 and the Hazardous Air Pollutant (HAP) Problem

Chapter Seven constitutes *Chasing the Wind*'s only sustained engagement with the statutory and regulatory dimensions of air pollution control law in the United States. That is all the more puzzling because air pollution is one of the most "statutorified" public health problems in the United States today.[64] Indeed, the standard historical explanation of its progression throughout the 20th century points to the failure of the common law and the rise of the administrative state.[65] Whatever else is wrong with this field, it is not that the U.S. Congress and federal agencies have paid it no attention. Yet *Chasing the Wind*'s perfunctory discussion of the run up to the 1970 CAA Amendments[66] sets the stage for a complete sacking of the Act's administrative regime largely through one of its subprograms, i.e., one single section of the statute. The result is a temperamental dismissal of an enormous field of law the contours of which go almost untraced. And the contours of the Act—the messy legislative compromises, regulatory promulgations, and judicial injunctions[67]—are far more relevant to the subject than those *Chasing the Wind* does trace.[68]

The book glances over the leviathan of the Act in search of direct regulatory control of "odors"—a category at whose contents the reader must continually guess[69]—and, finding

describe the resulting structure of social and economic regulation—a structure that renovated the original constitutional regime in favor of new understandings of individual rights, checks and balances, the role of the judiciary, and federalism." *Id*. at 24.

64. One of the few flashy moments of the book is when it mocks the academic fascination with *Boomer*. The opinion, it points out, was hardly innovative in its remedy choice for the cement plant's pollution, i.e., damages and not an injunction. By 1970, American courts had been engaging in the balancing analysis the *Boomer* majority displays for a long time—notwithstanding various praises "lavished" upon it for its supposedly novel approach. *Boomer*'s true significance was its nod to the impending CAA's restructuring of air pollution control policy in the United States. CHASING THE WIND, *supra* note 1, at 87-88 & n.5.

65. *See, e.g.*, SUNSTEIN, *supra* note 30, at 18-24.

66. CHASING THE WIND, *supra* note 1, at 133-35. The very first iteration came in 1955 with the enactment of the Air Pollution Control Act, *see* Pub. L. No. 84-145, 69 Stat. 322, although it confined the federal role essentially to research and support. Congress enacted the first "Clean Air Act" in 1963, *see* Pub. L. No. 88-206, 77 Stat. 392, and followed that in 1967 with the Air Quality Act. *See* Pub. L. No. 90-148, 81 Stat. 490. As Morag-Levine contends, this legislation took "a number of steps directed at strengthening local and state regulatory capacity" in air pollution control. CHASING THE WIND, *supra* note 1, at 133. The 1967 legislation, though, initiated a basic structure that remains of critical importance today: "[A]ir quality control regions" and the requirement that they meet certain "air quality criteria." *See* Arnold Reitze Jr., *The Legislative History of U.S. Air Pollution Control*, 36 HOUS. L. REV. 679, 696-712 (1999). As mentioned in *Chasing the Wind*, by the time the studies were being completed to enable the setting of those criteria Congress would be fast at work on the all-important 1970 Amendments. *Id*. at 698-700.

67. Book-length treatments of the institutional breakdowns of Congress, EPA, and the courts include MELNICK, *supra* note 43; BRUCE A. ACKERMAN & WILLIAM T. HASSLER, CLEAN COAL/DIRTY AIR (1981); and DEVRA L. DAVIS, WHEN SMOKE RAN LIKE WATER: TALES OF ENVIRONMENTAL DECEPTION AND THE BATTLE AGAINST POLLUTION (2002). Article-length studies of the matter would number in the hundreds. A formidable tome which tours the vast expanses of the *U.S. Code*, *Federal Register*, and *Code of Federal Regulations* pertaining to air pollution control is ARNOLD REITZE JR., AIR POLLUTION CONTROL LAW: COMPLIANCE AND ENFORCEMENT (Envtl. L. Inst. 2001). Not including appendices it is 641 pages.

68. For example, Morag-Levine seems in several places to assume that air pollution as a public health problem pertains mostly to those "major stationary sources" which might feasibly be subjected to the kind of best available technology (BAT) permitting process she heralds as so successful in countries like Germany. The fact that so much of our air pollution comes from automobile engines and other similarly minor and/or mobile and diverse sources, though, undermines that assumption. And, indeed, under the CAA's 1970 and 1977 Amendments, the United States "was among the first countries to control emissions from mobile sources such as cars and trucks." J. CLARENCE DAVIES & JAN MAZUREK, POLLUTION CONTROL IN THE UNITED STATES: EVALUATING THE SYSTEM 210 (1998). This is not to argue the relative superiority of U.S. policy toward such sources, but rather to suggest that any attempt to "measure the overall effectiveness of the U.S. system vis-à-vis other countries" must necessarily grapple with the sources of pollution as they actually occur from country to country. *Id*. at 226. And that makes one dimensional head-to-head comparisons quite difficult.

69. Early in the book, the reader is introduced to common-law nuisance's tendency to trivialize certain forms of air pollution as "trifling inconveniences." *See, e.g.*, CHASING THE WIND, *supra* note 1, at 55-60 (calling such forms of pollution "odors"). But there is no necessary connection between a "trivial" amount or kind of pollution and a palpable odor; where an odor is palpable, it simply means that naked human senses can detect it. Nevertheless, this is later

none, declares it a failure.[70] There are significant failures to be attributed to the CAA, but the ones *Chasing the Wind* highlights are of secondary importance at best. The single program Morag-Levine does scrutinize is the HAP program. As mentioned above, the major flaw *Chasing the Wind* finds in the Act's regime is its "harm-based" (risk-based) approach to pollution and the HAP program is somewhat representative of the Act on this point. It therefore makes sense to examine it in a little more detail.

1. Reinventing Regulation? HAP-Hazard Priorities and the New §112

HAPs are a subcategory of "air pollutants"[71] which were individually listed by Congress in the 1990 Amendments under §112(b).[72] Congress did so because they were thought to present especially acute risks to public health and because EPA was not controlling them fast enough. The 1990 CAA Amendments have been hailed as the final installment in a series of behemoth pollution control statutes and one of their functions was the overhaul of the HAP program.[73] The program's legendary bottlenecking at EPA led many to think of it as "symbolic legislation"—as a statute whose greatest moment was when its sponsors went out on the stump and declared victory.[74]

For most of the 1970s and 1980s EPA and Congress focused their collective energies on other parts of the air pollution problem—mostly on the national ambient air quality standards (NAAQS) and the state implementation plans (SIPs) meant to achieve them. If NAAQS and SIPs are aimed at chronic problems,[75] the HAP program is aimed at acute ones. The NAAQS-setting and SIP-approval processes unquestionably dominated air pollution control throughout the period in question.[76] The SIP creation process has resulted in a restructuring of countless facets of state and local government and federal law, while at the same time occasioning the expenditure of enormous capital resources both public and private.[77] In short, it left little for *other* air pollution control priorities like HAPs.

By late 1989, almost two decades after Congress had told EPA to control HAPs, §112 authority had been used to regulate a grand total of seven substances and the perversity had become clear.[78] Much was written about it as a statutory and bureaucratic failure, the most famous installment being John Dwyer's article labeling §112 "symbolic legisla-

transmuted into the claim that the air pollution category "odors" from the common law somehow leaked into the CAA's structure and perverted what would have otherwise been a scientific approach to a class of harmful emissions. *Cf. id*. at 136 ("In its 1980 report the EPA concluded, after reviewing the various regulatory options available to it for controlling odors under the [CAA], that the problem was best left to the administrative nuisance regime [policed by] the local and state agencies."). EPA, according to *Chasing the Wind*, was making the "assumption that the meaning of legal injury . . . caused by pollution ought to differ by the nature of the locale . . . ." *Id*. at 137. Actually, EPA was doing nothing of the sort. It was merely recognizing a stubborn fact of air emissions with which the science-based administrative state still grapples: certain quantities or rates of emissions do drastically different things depending upon the local atmospheric and topographical conditions in the vicinity of the emission and throughout its "airshed." To predict the effects of those emissions in some "nonarbitrary" fashion is quite difficult, to say the least. In other words, because prospective, legislative regulation of air pollution turns on complicated questions of dispersion, the engineering of appropriate monitoring techniques, and the evaluation of gathered data sufficient to predict conditions in that locality in the future, *see, e.g*., Ohio v. EPA, 784 F.2d 224, 16 ELR 20447, *aff'd on reh'g*, 798 F.2d 880, 16 ELR 20870 (6th Cir. 1986), and because EPA's standards operate nationally, EPA was merely recognizing that the effects of some air emissions are best regulated by the community they affect. *Cf. id*. at 241 (invalidating EPA's use of a computer model to set emissions limits on particular sources in the Cleveland metropolitan area). By its nature, nuisance did this at common law and still does so. *See, e.g*., Botsch v. Lee Land Co., 239 N.W.2d 481 (Neb. 1976) (odors from feed lot). Finally, it must be said that some nuisance actions do involve the truly trivial and/or a prejudiced plaintiff. *See, e.g*., Massey v. Long, 608 S.W.2d 547 (Mo. App. 1980) (noise from air conditioners); Spring-Gar Comm. Civil Ass'n v. Homes for the Homeless, 516 N.Y.S.2d 399 (1987) (siting of a homeless shelter).

70. Chasing the Wind, *supra* note 1, at 177-78.

71. The Act defines "air pollutant" as any "agent or combination of such agents, including any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air," including "any precursors to the formation of any air pollutant." 42 U.S.C. §7602(g). It makes "hazardous air pollutants" (also known as "air toxics") a subset of this universe in §112, first by specifically listing 189 substances Congress thought constituted HAPs and second by empowering EPA to update the list as necessary. In 1996, EPA used this authority to remove a substance from the list. *See* Hazardous Air Pollutant List, Modification, 61 Fed. Reg. 30186 (1996) (delisting "caprolactam"). It has otherwise remained relatively constant.

72. 42 U.S.C. §7412(b)(1). This list can be amended if EPA finds a chemical "present[s], or may present, through inhalation or other routes of exposure, a threat of adverse human health effects . . . or adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise . . . ." *Id*. §7412(b)(2). The "adverse human health effects" the Act lists are meant to encompass virtually any physically manifested effect upon the human physiology. *Cf. id*. (stating adverse human health effects include but are not limited to those that are "carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic"). Once a HAP makes it onto this list EPA must establish "source categories" and "emissions standards" tailored to those categories. 42 U.S.C. §7412(c)(1), (2). In this respect, HAPs illustrate the Act's concern for positive assessments of risk as opposed to "offensive" emissions. Controlling an emission because it may have an epidemiologically significant mutagenic effect will not, under any circumstances of implementation, become a zoning regime.

73. *See* Reitze, *supra* note 66, at 725-27.

74. *See, e.g*., John P. Dwyer, *The Pathology of Symbolic Legislation*, 17 Ecology L.Q. 233 (1990); John D. Graham, *The Failure of Agency-Forcing: The Regulation of Airborne Carcinogens Under Section 112 of the Clean Air Act*, 1985 Duke L.J. 100, 105-10.

75. The NAAQS control what are called "conventional" pollutants. The conventional pollutants are, for the most part, associated with more chronic health problems and are emitted by a vast diversity of sources. But the differences between a conventional pollutant and a HAP are just as much political as scientific. Achieving reductions of conventional pollutants typically entails significantly changing something pervasive in the economy/society, like the fuel automobile engines burn. HAPs, on the other hand, usually enter the ambient air in comparatively specific circumstances. *See* Mark S. Squillace & David R. Wooley, Air Pollution 56-65 (3d ed. 1999).

76. *See generally* Reitze, *supra* note 66. This is part of what makes Morag-Levine's dismissal of the Act seem temperamental: her scant attention to the conventional pollutants, in a world of budgetary scarcity where allocation of resources to one priority means deprivation to others, seems stilted. *See* Daniel H. Cole & Peter Z. Grossman, *When Is Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection*, 1999 Wis. L. Rev. 887, 910-38.

77. Daniel Farber, *Rethinking Regulatory Reform After* American Trucking, 23 Pace L. Rev. 43, 70-76 (2002).

78. Many more HAPs had been listed by the late 1980s only to remain without the required "emission standards." *See* Natural Resources Defense Council v. EPA, 824 F.2d 1146, 1153 n.1, 17 ELR 21032 (D.C. Cir. 1987) (setting forth the 17 HAPs that had been listed by then). Several of those were the result of litigation forcing the

tion."[79] While this is not the place to replay that debate, it does merit a moment's worth of clarification. A glacial pace is not uncommon in the enactment and implementation of pollution control regulations. But perhaps something more must explain why a program aimed at a group of pollutants thought to "pose especially serious health risks"[80]—risks over and above those posed by the so-called conventional pollutants—moved so slowly for so long. The HAP program's problems are those of pollution control policy in America generally: (1) the technical and organizational bottlenecks that arise when causal links between pollution and health effects must be proven; and (2) the politicization of cost-benefit, technological feasibility analyses. Sections 2 and 3 explore each in turn.

2. Information Bottlenecks and the Politics of Cost

Both Congress and EPA knew the HAP standard-setting process would require a lot of high quality science.[81] It was also probably clear that to amass the information necessary to that science would be a gargantuan regulatory task: the persons with whom EPA would have to bargain for the information were all aware of the stakes.[82] What was apparently less than clear was how utterly impossible EPA's task would grow as various stakeholders became enmeshed in the toxicology and regulatory politics of the individual pollutants and polluting facilities.

As Morag-Levine notes in her opening sketch of the Act,[83] Congress initially intended the HAP program to concern only "a small number of extremely dangerous chemicals" which would be listed "based exclusively on scientific determinations of risk . . . to be applied without regard to cost."[84] Once listed, EPA was supposed to set permissible ambient levels of such pollutants and provide an "ample margin of safety."[85] But as EPA later admitted, the risk assessment methods in 1970 used to attack the HAP agenda handed to it by §112 were, to say the least, nascent and subject to question.[86] Furthermore, Congress rather naïvely set a very short time frame within which EPA was supposed to finalize the "emission standard[s]."[87] Section 112's phrase "ample margin of safety" has engendered no mean controversy ever since, chiefly because lining up all the requisite elements of fact and judgment to achieve it makes for a terrifically complex public rulemaking and such rulemakings make for terrifically unpredictable administrative law controversies.[88]

Intuitively, providing for an "ample margin of safety" is impossible unless you can first say what is "safe." Because so few hazardous emissions have been studied to an extent that that "safety threshold" is known,[89] an agency duty like this creates a regulatory "bottleneck."[90] Morag-Levine diagnoses this condition consistent with a long line of scholars who have denounced §112.[91] The unknown of where to situate such a threshold pervades the whole regulatory process because it obstructs any and every connected step in a rational regulatory analysis.[92] It becomes impossible to gather

agency to list the substances. *See, e.g*., Sierra Club v. Gorsuch, 551 F. Supp. 785, 13 ELR 20231 (N.D. Cal. 1982) (radionuclides); New York v. Gorsuch, 554 F. Supp. 1060, 13 ELR 20248 (S.D.N.Y. 1983) (arsenic).

79. *See* Dwyer, *supra* note 74, at 236-50. *Chasing the Wind* repeatedly refers to this "symbolism" in a derogatory fashion and expands it to the whole Act. *See, e.g*., CHASING THE WIND, *supra* note 1, at 184 (calling the Act's "risk" regime "absolutist" and "chimerical" and erroneously citing Dwyer as mounting a similar critique of the Act in its entirety). Dwyer actually focused on §112 standing alone and argued that

> [t]o characterize some statutory provisions, such as [§]112, as being symbolic, however, is not to deny their instrumental value. Section 112 probably reflects the concern that absent an unequivocal (if somewhat idealistic) national policy to eliminate risks from air-borne hazardous pollutants, the compromises characteristic of rulemaking and enforcement would undermine the goal of protecting public health.

Id. at 247.

80. Report of the House Committee on Energy and Commerce on H.R. 3030, H.R. REP. No. 101-490 pt. 1, 101st Cong. 319-20 (1990).

81. Dwyer, *supra* note 74, at 235-41.

82. *Cf*. BREYER, *supra* note 18, at 103 ("Obtaining accurate, relevant information constitutes the central problem for the agency engaged in standard setting. It has difficulty finding knowledgeable, trustworthy sources. It may find that . . . its initial proposals determine what information is produced, which in turn determines the context of future proposals."); *id*. at 109 ("The agency has five possible sources for this information: the industry, government staff, independent consultants, academics, and consumer groups. Each source suffers from serious drawbacks . . . [for example], the industry can try to use the information it controls to influence the agency in its favor.").

83. *See supra* note 20 and accompanying text.

84. CHASING THE WIND, *supra* note 1, at 16.

85. Section 112 has, since it was first created in 1970, required that EPA set levels of identified HAPs which could occur in the ambient air. REITZE, *supra* note 67, at 127.

86. *See* U.S. EPA, TAKING TOXICS OUT OF THE AIR 5-6 (1998) (EPA 451/K-98-001).

87. The whole sordid story is retold fully in Dwyer, *supra* note 74.

88. Being bureaucratically organized from its inception, EPA has faced organizational challenges never encountered by common-law courts making risk-based determinations on a decentralized and lay basis. *See generally* MELNICK, *supra* note 43. More specifically, the difficulty is in providing for an ample margin of safety which is not "arbitrary, capricious, an abuse of discretion, or otherwise . . . in excess of statutory jurisdiction, authority, or limitations, or short of statutory right" nor completed "without observance of procedure required by law." 5 U.S.C. §706(2)(A),(C),(D).

89. This is a problem for more of the Act than just §112. Many pollutants, though they have been studied in depth and at great cost, remain enigmatic when it comes to establishing a precise epidemiological profile. *See* Joseph M. Feller, *Non-Threshold Pollutants and Air Quality Standards*, 24 ENVTL. L. 821, 823-24 (1994):

> A critical, but often incorrect, assumption underlies both the structure of the [CAA] and the use of the NAAQS to measure progress in combating air pollution. . . . For many environmental pollutants . . . [a]pparent thresholds sometimes reflect nothing more than the limits of experimental or epidemiological methods in detecting minor or infrequent effects. As scientific methods improve, apparent thresholds fall.

(citing David D. Doniger, *Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control*, 7 ECOLOGY L.Q. 497, 511-14 (1978)).

90. *See generally* Doniger, *supra* note 89; MELNICK, *supra* note 43, at 239-98.

91. The bottlenecking phenomenon, indeed, has been featured prominently by so-called civic environmentalists who use it to advocate a radically more participatory, radically less "technocratic" approach to all environmental protection. *See, e.g*., WILLAM A. SHUTKIN, THE LAND THAT COULD BE: ENVIRONMENTALISM AND DEMOCRACY IN THE TWENTY-FIRST CENTURY (2001); CARMEN SIRIANNI & LEWIS FREIDLAND, CIVIC INNOVATION IN AMERICA: COMMUNITY EMPOWERMENT, PUBLIC POLICY, AND THE MOVEMENT FOR CIVIC RENEWAL 85-137 (2001); Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257 (2001).

enough information to take even the first step, leaving out of reach the implementation of things like individual emissions controls.[93]

While the HAP program eventually grew so contorted from political and legal pressures[94] as to be virtually unique, in retrospect it showcased a broader reality of risk-based air pollution control. For, as a subtext of *Chasing the Wind* also suggests, our legal and political systems—because of their *pragmatism*—are addicted to considerations of cost, practicability, and virtually any other relevant information available even in programs meant to achieve a "healthy" ambient environment by the lights of scientific risk assessments. This is what makes the phenomenon of "non-threshold pollutants" so notorious in pollution control law and policy debates generally. What *Chasing the Wind* fails to acknowledge, though, is that a simple solution to these problems has existed for some time and, indeed, has characterized environmental legislation in the United States for more than a decade.

The solution simply reverses the presumptions about "pollutants" and works backwards, shifting the informational burdens to individuals for whom freedom from the regulatory control might be worth the cost of exhaustive investigation of a particular substance in a particular amount, contributing to a particular ambient environmental condition.[95] The CAA's *revised* §112 does this, but also adds a second phase. Under the new §112, EPA first lists and categorizes the classes of "sources" which emit one or more of the pollutants on the legislated list.[96] For any "major source" (a category EPA has significant discretion in defining), the agency must establish the "maximum degree of reduction in emissions of the [HAPs] taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements," which EPA determines is "achievable" by either a "new" or an "existing" source.[97] This is known as the maximum achievable control technology (MACT). Once set, all new and modified sources within the ambit of a MACT standard must meet or exceed its stringency[98] and only after MACT is in place does EPA turn to the risk-based phase of the program.[99]

92. The original §112 was interpreted as requiring EPA first to determine—without regard to cost or technological feasibility—the levels of an air pollutant at which the risks associated with it were "acceptable." Natural Resources Defense Council v. EPA (*Vinyl Chloride*), 824 F.2d 1146, 1165, 17 ELR 21032 (D.C. Cir. 1987) (invalidating proposed revisions to emission standards for vinyl chloride). Once that determination was in place, *then* costs and technological feasibility could enter EPA's regulatory analysis. Note that the *Vinyl Chloride* court did not hold that §112 barred EPA from considering cost and/or technological feasibility in the emission standard-setting process. Indeed, because it found no express prohibition on point, the court held that EPA "necessarily" must be allowed to consider costs and feasibility. *See id*. at 1163 ("Since we cannot discern clear congressional intent to preclude consideration of cost and technological feasibility in setting emission standards under [§]112, we necessarily find that the Administrator may consider these factors."). What it said was that an "initial determination" of some "acceptable" risk from HAPs completely independent of cost considerations was required of EPA. Once that objective was set, *then* EPA was allowed to consider cost and technological feasibility in achieving the "ample margin" past which the standards were to push ambient levels. *Id*. at 1164 (citing Industrial Union Dep't, AFL-CIO v. American Petroleum Inst., 448 U.S. 607, 642, 10 ELR 20489 (1980)). Of course, whether that holding was actually a logically coherent interpretation of the problem where nonthreshold pollutants are at issue is another matter entirely. *See* Patricia Ross-McCubbin, *Amending the Clean Air Act to Establish Democratic Legitimacy for the Residual Risk Program*, 22 Va. Envtl. L.J. 1, 6-17 (2003) (arguing it was not). It is plausibly coherent until it is recalled that what makes any certain risk "acceptable" or not is its particular social setting. The decisionmaker must ask what is to be gained by undertaking the risky conduct and are there any alternatives for achieving the ends in mind? If there is good enough reason and no alternative, certain risks must rationally be accepted. *Cf. id*. at 15 (arguing that a "risk is acceptable only if the advantages to be gained are judged to outweigh it"). EPA's efforts in that context to describe an "acceptable" risk posed by a nonthreshold pollutant without reference to the costs or feasibility of its abatement were, to most observers, disingenuous at best. *See id*.

93. Those experienced with the process describe it in terms reminiscent of gallows humor or liken it to the logical puzzle of how long it will take to cross a 10-foot room if each move traverses exactly one-half the distance to the other side. This has led some scholars to declare the whole expertise-oriented approach to pollution a failure (or worse, a legitimating fiction intended to placate opponents of industrial progress). *See, e.g*., Frank Fischer, Citizens, Experts, and the Environment: The Politics of Local Knowledge (2000).

94. The first rulemaking following the *Vinyl Chloride* decision on §112 pertained to benzene, 54 Fed. Reg. 38044 (1989); 55 Fed. Reg. 8292 (1990), and only enhanced the puzzlement of commentators. *See* Dwyer, *supra* note 74, at 309 & n.209 (noting the rulemaking proceeding and that the *Vinyl Chloride* opinion might not "change the emission standards that the Agency adopts"). Benzene is both highly toxic and a pervasive commercial chemical product in America. Its total eradication from our economy was not something EPA seriously considered. *See, e.g*., Janet McQuaid, *Risk Assessments of Hazardous Air Pollutants Under the EPA's Final Benzene Rules and the Clean Air Act Amendments of 1990*, 70 Tex. L. Rev. 427 (1991).

95. Even assuming a set list of pollutants and that their threshold-triggering amounts or concentrations have been dictated, though, the setting of a BAT standard for those substances still can become a regulatory bottleneck. *See, e.g*., Oliver A. Houck, *The Regulation of Toxic Pollutants Under the Clean Water Act*, 21 ELR 10528, 10537 (Sept. 1991) (describing the gargantuan task of setting CWA BAT standards as requiring the agency to "master the economics, engineering, and technology of every industrial process in the most industrialized and fastest-growing economy in world history"); *see infra* notes 195-200 and accompanying text.

96. *See* 42 U.S.C. §7412(c). The original version of §112 required EPA first to list the chemicals that would be deemed HAPs, whereas the new §112 came with a legislated list of 189 HAPs prefabricated. EPA can add to or subtract from the list, but its experiences with the initial version of the program, *see* Dwyer, *supra* note 74, at 254-55, suggest why those rulemakings will be few and far between.

97. A "major source" is defined as

> any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any [HAP] or 25 tons per year or more of any combination of [HAPs].

42 U.S.C. §7412(a)(1). An "area source," defined as "any stationary source . . . that is not a major source," *id*. §7412(a)(2), is regulated with major sources when it is specifically identified by EPA as presenting a "threat of adverse effects to human health or the environment" pursuant to §112(c)(3). *Id*. §7412(d)(1).

MACT is deemed met for a source when it has achieved the average emission limitation achieved by "the best performing [12%] of the existing sources" in that source's category. *Id*. §7412(d)(3)(A). If it will result in a MACT standard that is more stringent than the foregoing, a source must achieve "the average emission limitation achieved by the best performing five sources (for which the Administrator has or could reasonably obtain emissions information) in the category . . . with fewer than 30 sources." *Id*. §7412(d)(3)(B).

98. In essence, instead of regulating from the ambient air (and any harms linked from the ambient air to the public health) back to the source, EPA now starts with the source. If any new or modified major source has no applicable MACT standard written, the standard it must meet is to be determined on a case-by-case basis. *Id*. §7412(j). This determination has been merged into the Subchapter V omnibus operating permit program, *id*. §7412(j)(5), and has been structured by EPA rulemaking. *See* 40 C.F.R. §63.43.

99. The "residual risk" phase begins after MACT standards are established. Should EPA, after it puts a MACT standard in place, find that

This two-tiered structure of the HAP program was set in motion as of 1990 and was billed as a complete overhaul of the pre-1990 regime.[100] It presents an interesting counterpoint to *Chasing the Wind* because it leads with a technology-based (or best available technology (BAT)) mandate for the reduction of HAPs. Only after these source-based pollution reductions are achieved must EPA turn to the (more daunting) task of setting an ambient-environmental standard.[101]

Does the MACT first, ambient-risk second approach break the bottleneck within the HAP program? It certainly cleared EPA of the rather taxing burden of identifying air toxics one at a time.[102] The 1990 overhaul was supposed to allow EPA to solve the "easier" problems—the design and imposition of "achievable" pollution control technology on all significant sources—first.[103] So what has happened since?[104] Almost no research exists to say.[105] I believe the *new* §112 merits so little attention in *Chasing the Wind* (or any other advocate of so-called BAT regulation) because the "risk-based" versus "technology-based" debate in pollution control has become virtually ideological in nature. The book's real point cannot be this abstract, so it must somehow parlay the argument into a more specific form.

Chasing the Wind shows at least this much: the risk-based versus technology-based dispute still dominates scholarly attention like nothing else in pollution control even while it has become overdone at best. In point of actual fact, virtually *every* pollution control program in the administrative state has had *some* version of a two-tiered structure incorporating both technology- and risk-based standards. The CAA itself is a massive amalgam of ambient environmental quality and technology mandates, as is the Clean Water Act (CWA).[106] The only interesting questions left in this debate

"the individual most exposed to emissions" of the HAP still faces a "lifetime excess cancer risk" of greater than one in one million, EPA must promulgate further emissions standards to reduce that risk. 42 U.S.C. §7412(f)(2)(A). Nothing further is specified in the statute as to the scale of the mandatory risk reductions. EPA's announced intention is to stage the risk reductions it pursues according to three specific goals: (1) the reduction in cancer incidence from HAPs in urban areas nationwide by 75%; (2) the substantial reduction of noncancer health risks from "area sources" in urban areas; and (3) the targeting and reduction of all "disproportionate" risks from HAPs in urban areas originating from all sources. *See* Notice, National Air Toxics Program: The Integrated Urban Strategy, 64 Fed. Reg. 38706, 38711-16 (1999).

100. These secondary HAP standards must be in place within eight years of EPA's finding. *Id*. §7412(f)(2)(C). This new approach was designed to function more like the new source performance standards (NSPS) program of CAA §111. Setting an NSPS entails the establishment of facility categories and the "best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated." *Id*. §7411(a)(1). Facilities are subject to NSPS if they are "constructed" or "modified" in accordance with the terms EPA has established by regulation. *See* National Asphalt Pavement Ass'n v. Train, 539 F.2d 775, 6 ELR 20688 (D.C. Cir. 1976); Sierra Club v. Costle, 657 F.2d 298, 11 ELR 20455 (D.C. Cir. 1981).

101. There are now several statutes of this sort at the state and federal level. EPA's Toxic Release Inventory (TRI)—not a part of the CAA but which pertains to the routine release of many substances regulated by the Act—is similar. Buried away in the Superfund reauthorization in 1986, the TRI statute simply dictated a list of some 300 *suspected* toxics, set somewhat arbitrarily selected triggering amount thresholds, and dictated (by Standard Industrial Classification code) the facilities that would be covered by its provisions. *See* Karkkainen, *supra* note 91, at 286-88. The list of toxics was later expanded by EPA to include some 286 other substances. *See* Troy Corp. v. Browner, 120 F.3d 277, 27 ELR 21548 (D.C. Cir.), *reh'g denied*, 129 F.3d 1290, 28 ELR 20200 (D.C. Cir. 1997). If a covered facility manufactures or uses a covered substance in greater than threshold amounts it must file a TRI report that year. The TRI reports are aggregated into a broadly accessible, broadly searchable database. The availability of this information has proven to be a significant downward force on emissions. Karkkainen, *supra*, at 288 ("[M]ost observers, including TRI-reporting firms, credit TRI with playing a central role in driving improvements in pollution performance. According to one EPA survey, some [70%] of TRI reporting facilities indicate that they have intensified their waste reductions efforts under the influence of TRI."). Given the cultural and social meaning of emitting "toxics," it might reasonably be asked whether this really is something other than an indirect mode of prohibition. *Cf*. Breyer, *supra* note 18, at 161 ("Not all disclosure is designed to make competitive markets function more effectively. Sometimes its object is to outlaw particular conduct by bringing legal or moral pressure to bear upon those engaging in it.").

Of course, the arbitrarily selected volumetric thresholds, facility types and sizes, and the initial listing of the "suspected" toxics all add up to substantial possibilities of regulatory "misfit." That is, these arbitrarily set parameters can mean over- and underinclusions in the TRI system. *See, e.g*., U.S. General Accounting Office (GAO), Toxic Substances: EPA Needs More Reliable Source Reduction Data and Progress Measures 14 (1994) (GAO RCED-94-93) (asserting that, of the many thousands of chemicals currently in commercial use in the United States, TRI requires reporting on only a small fraction). Such imperfections, however, might in theory be used to push market actors to undertake the necessary studies and other actions in order to remove themselves from the system. *Cf*. Karkkainen, *supra*, at 367-70.

102. *Cf*. Dwyer, *supra* note 74, at 258 ("[B]y the early 1980s, EPA took as long as four years to decide whether to list a chemical and several additional years to issue proposed regulations."). The regulatory task of identifying a HAP was EPA's original "paralysis by analysis." *Id*.

103. As a BAT approach, MACT is exactly the sort of improvement *Chasing the Wind* advocates. It is, therefore, somewhat puzzling that the "new" §112 (i.e., the 14-year-old "new" §112) is nowhere featured as a change from nor compared to its 1970 self. Professor Dwyer, whose study forms most of the support for *Chasing the Wind*'s treatment of §112, only argued that the "absurdly short deadlines and excessively strict emission criteria [in the old §112] communicate a more general message that the legislature recognizes [HAPs] as a frightening and potentially serious public health problem and that EPA should make special efforts to control these hazards." Dwyer, *supra* note 74, at 250. Dwyer also went on to admit that such legislative responses to pollution categories like HAPs are often "necessary," given the political coalitions that predominate in the legislative process. *Id*. at 305.

104. Several factors played a role in EPA's pace in listing HAPs under the 1970 version of §112. *Cf*. Dwyer, *supra* note 74, at 238 ("[E]ven though EPA is under strict deadlines to adopt emissions standards for listed [HAPs], the agency has broad discretion to decide whether to designate a chemical as a hazardous air pollutant in the first place."). Besides keeping itself out of an unwinnable war triggered by a HAP being listed, EPA's pre-1990 imperatives in the HAP program were shaded by doubts that it could adequately enforce the emissions standards it crafted. *See* Dwyer, *supra* note 74, at 258-60.

105. One study by Patricia Ross-McCubbin concludes that the two-tiered structure lacks legitimacy because it actually permits a behind-the-scenes consideration of cost by EPA. Ross-McCubbin, *supra* note 92, at 49-51. In 1994, Prof. Bradford Mank suggested a variance process by which the second, "residual risk" phase might be streamlined. *See* Bradford C. Mank, *What Comes After Technology: Using An "Exceptions Process" to Improve Residual Risk Regulation of Hazardous Air Pollutants*, 13 Stan. Envtl. L.J. 263 (1994). And some have studied the setting of (or failure to set) particular MACT standards. *See, e.g*., Timothy F. Malloy et al., *Mandating Pollution Prevention: The TAO of Regulation*, 29 Admin. L. & Reg. News 4 (2004). However, no detailed research has been done to connect regulatory failures of any general sort with the new two-tiered structure of §112 (nor to dispel any such critique).

106. *See, e.g*., Flournoy, *supra* note 8, at 352-86 (describing various statutes); Reitze, *supra* note 67, at 18 (calling the CAA a "philosophical hybrid with overlapping environment-based and technology-based requirements"). The CWA's evolution has swung several arcs between these two.

> The hallmark of the [CWA] is its emphasis on nationally uniform technology-based standards. From 1972, when the Act was cast in its modern form, until the 1987 Amendments . . .

are about sequence and emphasis and even those are essentially organizational questions.[107] *Chasing the Wind* chases the same false dichotomy that so many other critiques have before it, leaving time for only one other conflict: environmental justice and the siting of locally undesirable land uses.[108] This latter issue is a real one, to be sure. But it has more to do with an incipient, pervasive racism than it does with pollution control in the administrative state.[109]

What is most disappointing about this particular study, though, is that it starts from an intriguing, even path-breaking premise: that the governance structure itself—the "administrative state"—is at a transformative cross-roads because of its failures. Unfortunately, instead of developing this premise *Chasing the Wind* safely reroutes its inquiry back into a moribund debate, treating it as just another occasion to herald the possibilities of a more "cooperative" pollution control regime predicated upon the "feasible" technology solutions so tantalizingly within our grasp.[110]

Taking a different view of the CAA as a pollution control regime with many facets demonstrates two things: (1) how truly hybridized its strategies are; and (2) how some of the implications of a structural cross-roads at which *Chasing*

> the [Act] was focused on requiring point sources to control their pollutant discharges based on the capabilities of pollution control technology. . . . It appears that the approach to water pollution control . . . is coming full circle. [H]aving eschewed the use of water quality standards in 1972 in favor of technology-based standards, the [Act's] program—reflected in statutory, regulatory, and case law developments—is now focused largely on water quality standards.

JACKSON B. BATTLE & MAXINE I. LIPELES, WATER POLLUTION 181 (3d ed. 1998). A telling aside on the very phrase used in §112's text, "emissions standard," ought to be mentioned in this connection. The phrase is used several times in the CAA and the CWA and can be an ambiguous one. Depending on the precise regulatory context, an "emission standard" might be either technological in nature or practical in nature, which itself illustrates how empty the health-based versus technology-based debate truly is as a legal question. In 1978, in a criminal prosecution for a violation of what the government called an "emission standard" pursuant to §112(a)(1) of the CAA, the term became pivotal. The EPA "standard" in issue was the requirement that, in demolition of asbestos-containing buildings, any friable asbestos be watered down before demolition was begun in order to minimize fiber-dispersal. The defendant did not comply with the regulation and was prosecuted. On appeal, the question was whether such a "work practices" rule was an "emission standard" within the meaning of §112. Adamo Wrecking Co. v. United States, 434 U.S. 275, 285, 8 ELR 20171 (1978) ("The question is only whether the regulation which the defendant is alleged to have violated is on its face an "emission standard" within the broad limits of the congressional meaning of that term.").

While a 5-4 majority held that the watering requirement was not an "emission standard," the four dissenters cogently argued that there was "no semantic reason why the word 'standard' may not be used to describe the watered-down asbestos standard involved in this case." *Id*. at 296 n.4. And as the division of the Justices in *Adamo Wrecking* must show, the term is, by itself, somewhat ambiguous. Furthermore, the watering requirement was originally created by EPA at the urging of industry when it attacked the proposed standard (prohibiting any visible emission of asbestos in connection with various demolition of buildings) as too stringent! *Id*. at 297 ("If that total prohibition had been adopted, it unquestionably would have conformed to the statutory mandate. It was not adopted, however, because industry convinced the Administrator that his proposal would prevent the demolition of any large buildings."). The work practice standard, in other words, was adopted to make compliance easier but, in the process, complicated the conclusion that it was an "emissions limitation."

107. As Howard Latin argued almost 20 years ago, "[e]ffective environmental protection may require agencies to treat some scientifically and economically relevant, but currently unresolvable, issues as legally irrelevant" because so "[m]any important environmental uncertainties . . . stem from inadequate scientific understanding rather than merely from inadequate data." Howard Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning" Regulatory Reforms*, 37 STAN. L. REV. 1267, 1282-83 (1985) [hereinafter Latin, *Ideal Versus Real*]. Even Latin, however, while a notorious advocate of BAT standards, observed that "[b]ecause pollution sources rarely possess identical technological and economic characteristics, the creation of regulatory subcategories and the placement of individual facilities within them required the EPA to make many debatable judgments [in BAT decisions]. Dischargers frequently challenged these agency decisions in appellate litigation." *Id*. at 1315. In other words, the creation of "uniform standards applicable to categories of dischargers inevitably requires the EPA to make generalizations that lump together some plants which might arguably be classified in different subcategories." *Id*. at 1315 n.229. *See also* Howard Latin, *The Feasibility of Occupational Health Standards: An Essay on Legal Decisionmaking Under Uncertainty*, 78 NW. U. L. REV. 583, 588, 600-02, 611-12, 624-28 (1983). The result is just as much litigation over unknowns as happens in risk-based standard setting. This may explain why so much of the best work being done in environmental law today is about "ecosystem management" instead of "pollution control": many scholars simply grew tired of a dead-end debate. That is not to say that good, even path-breaking work is no longer being done to find the right sequence and the right emphases as between the two types of controls in particular settings. *See, e.g.*, Mank, *supra* note 105. It is to say, though, that the abstract question of which form of pollution control is better for society as a whole has run its course.

108. *See, e.g.*, CHASING THE WIND, *supra* note 1, at 143-78; *id*. at 183:

> [I]gnoring localized pollution is endemic to the risk/nuisance regime. Studies of the distribution of environmental burdens have largely focused on the siting decisions of polluting or otherwise hazardous firms and public facilities. Environmental justice critiques of discriminatory siting practices have been met with counterarguments about market-driven household relocations underlying observed demographic-environmental patterns. The question as framed by this debate implicitly accepts the common law's view that land-use separation is the appropriate response to localized pollution.

(Internal citations omitted.)

109. This is not to deny that the answers to such racism are necessarily unrelated to EPA's regulations. But it is a different debate. *Compare* Vicki Been, *What's Fairness Got to Do With It? Environmental Justice and the Siting of Locally Undesirable Land Uses*, 78 CORNELL L. REV. 1001, 1006 (1993) ("Calls for environmental justice are essentially calls for "equality" and . . . "equality in the end is a rhetorical device that tends to persuade precisely by virtue of 'cloak[ing] strongly divergent ideas over which people do in fact disagree.'") [hereinafter Been, *What's Fairness Got to Do With It?*] *with* Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?*, 103 YALE L.J. 1383, 1384 (1994):

> [S]tudies demonstrate that those neighborhoods in which LULUs are located have, on average, a higher percentage of racial minorities and are poorer than non-host communities. The research does not, however, establish that the host communities were disproportionately minority or poor at the time the sites were selected. . . . This approach leaves open the possibility that the sites for LULUs were chosen fairly but that subsequent events produced the current disproportion in the distribution of LULUs.

[hereinafter Been, *Locally Undesirable*].

110. The relative superiority of BAT- or risk-based strategies of regulation has been one of the defining debates of pollution control policymaking in the administrative state and this book will probably be read as yet another salvo in that struggle by much of its audience. I think that is an unfortunate and telling reflection of the state of the debate here. I would contend that the subtext motivating the book's narrative—and the transformation of the administrative state we are witnessing today—is subtle and much more interesting. That subtext goes to the structure of our federal state and the nature of administrative power when it competes with judicial power therein. Thus, Morag-Levine is right to focus on the "adversarial" nature of pollution control policymaking in the United States. Yet, as I hope Part III demonstrates, she is wrong to suggest that it necessarily favors lax or

the Wind hints might be clarified in future research. Such a view would put in issue certain basic assumptions about controlling pollution set in stone in the 1970 and 1977 Amendments. There are two sets of these assumptions: the first goes to the control of individual "pollutants" as threats to public health and welfare and the other goes to the federal-state balance of power. The remainder of this Article turns to those assumptions within the Act and the implications a book-length study like *Chasing the Wind* might have illuminated.

B. Pollutant by Pollutant: The NAAQS/SIP Structure

What has exacerbated our regulatory bottlenecking and ground so many of the administrative state's pollution control programs to a halt is the one strategy pervading the entirety of the CAA, the CWA, and so many other pollution statutes: the choice to regulate, substance by substance, pollutant by pollutant. Air pollution control policy in the United States has as its defining feature an abiding determination to isolate the unisolable: individual "pollutants."[111] Recognize, though, that "pollution" as a threat to public health and welfare has no necessary connection to individuated compounds, elements, or substances; the very term itself is a contextual, even holistic, phenomenological judgment.[112] When we regulate a "pollutant," we *object* to its emission by persons.

Truly, the strategy of detaching elements, compounds, chemicals, etc., from the broader contexts of their occurrence in the ambient environment (and the slightly narrower context of their anthropogenic occurrence) and attempting to regulate them as "pollutants," has been *our* strategy.[113] A point I took from *Chasing the Wind*'s description of the common-law nuisance regime is that individual pollutants used to be relatively unimportant: "fouling," "blackening," aggregated "odors," and the like all took center stage in the making of a case for an injunction at common law.[114] The administrative state, though, with its expert agencies and scientific bases for regulation, proceeds on the premise of individual pollutants as agents, one state at a time, for one simple reason: it is "rational" and "federal" to do so. I show in the balance of Part II.B. how this combination has ground so much of the CAA to a virtual standstill while simultaneously traumatizing those parts that have moved forward. The largest component of the regime, the NAAQS and SIPs meant to achieve them, are exemplary.

1. NAAQS/SIPs: Pollutant by Pollutant, Place by Place

The NAAQS are about ambient environmental quality, i.e., risk-based standards, and for that reason alone garner Morag-Levine's criticisms.[115] But they are also nationally uniform standards pertaining to single, individuated pollutants,[116] to be implemented state-by-state, and they might therefore be criticized in other ways. For some substances—for example, lead—isolating them as a health hazard is quite easy.[117] But for others it is not so easy; synergistic effects are known to be common but not very well studied.[118] Moreover, any regulatory objective expressed as an ambient environmental quality goal for a territory as large, heterogeneous, and politically diverse as the United States, faces significant issues of implementation.[119] Even

ineffective pollution control or that it is the primary cause of the lax pollution controls that do exist. What it does speak to is the changing nature of our administrative agencies and how they relate to the presidency, how courts relate to both of them, and how the public is served or disserved by all of them. *See infra* Part III.

111. The Act's definition of "air pollutant" is extraordinarily broad. *See supra* note 71.

112. The common definition of the term is linked back to the infinitive, to pollute, which means "to render morally impure; corrupt." American Heritage Dictionary 960 (2d ed. 1969). This is the sense in which Congress in 1972 expressed the "national goal" that "the discharge of pollutants into the navigable waters be eliminated by 1985." 33 U.S.C. §1251(a)(1). *Cf.* Mark Sagoff, *The Principles of Federal Pollution Control Law*, 71 Minn. L. Rev. 19, 24 (1986):

> Pollution control laws, in their most general terms, belong to a long tradition of humanitarian legislation intended to ameliorate man's inhumanity to man. Since the time of the abolition movement, reformers in the United States have used federal law as a force for social improvement. Congress has ended child labor, improved unconscionable conditions in sweat shops, company towns and mines, and set a maximum workday and a minimum wage. Congress also has relieved the suffering of the very poor, provided some public health care, and established other programs that may vindicate our nation's claim to being a compassionate community concerned about the health, safety, and well-being of the individual citizen. Between 1969 and 1978, Congress enacted eight major pollution control statutes as part of a wave of environmental and civil rights legislation.

113. Reasonable minds might differ over the impetus and/or the wisdom behind this choice. Indeed, a new wave of scholarship in environmental law and public policy suggests that the pollutant-by-pollutant approach has been the key failure and that a much better strategy would combine pollutants into a "flexible basket" from which sources could choose their performance improvements. *See, e.g.*, Karkkainnen, *supra* note 91, at 278; Archon Fung & Dara O'Rourke, *Reinventing Environmental Regulation From the Grassroots Up: Explaining and Expanding the Success of the Toxics Release Inventory*, 25 Envtl. Mgmt. 115 (2000). But as a regulatory strategy it has created a virtually insatiable need for scientific data linking the individuated elements/compounds to human health and welfare effects. This is the one choice which has truly defined pollution control policy in the United States ever since it was taken from the courts and given to the "expert" agencies. In several other contexts, EPA itself has questioned this strategy's workability. *See, e.g.*, U.S. EPA, Advanced Notice of Proposed Rulemaking, 68 Fed. Reg. 3786 (2003) (proposing a "programmatic" approach to group pesticides with similar exposure or toxicity profiles or by crop for analytical purposes under the Endangered Species Act in order to more quickly determine risks to listed species).

114. Indeed, reading the case studies in *Chasing the Wind* reminds us of how common-law courts confronted pollution: through a lay person's perspective. "Gob pile roasting" such as that in the *McKeesport* case, *see supra* notes 52-55 and accompanying text, produced emissions that were demonstrably injurious and objectionable. It was not something whose constituents had to be individually analyzed before being controlled singly, specifically, or in professionally calibrated fashion.

115. Chasing the Wind, *supra* note 1, at 17 (critiquing the NAAQS for being based on air quality).

116. Section 108(a) requires that

> [f]or the purpose of establishing national primary and secondary ambient air quality standards, the Administrator shall . . . publish, and shall from time to time thereafter revise, a list which includes each air pollutant—emissions of which, in his judgment cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare [and] the presence of which in the ambient air results from numerous or diverse mobile or stationary sources.

42 U.S.C. §7408(a)(1)(A)-(B).

117. *See* Natural Resources Defense Council v. Train, 545 F.2d 320, 325 (2d Cir. 1976) (no party contested the conclusion that lead met the criteria for listing under §108(a)(1)). While lead is a good example of an element about whose toxicity there can be no reasonable disagreement, it also exemplifies the controversy that can stem from at-

attempting to predict what air emissions in one place will eventually do in some other atmospherically related (but jurisdictionally distinct) place is incredibly ambitious, to say the least.[120] When the federal-state power struggle is factored in, the complexity of the NAAQS/SIP structure becomes daunting.[121]

Imagine how variegated your regulatory strategy must be to achieve an environmental quality standard across the diversity of jurisdictions and environments of the United States.[122] That mental experiment forces one to grapple with the major structural constant of our administrative state (which plays virtually no role in *Chasing the Wind*): federalism and the power of subnational governments. In both political and legal terms, federalism has exerted a dominant influence on modern air pollution control policy.[123] To read *Chasing the Wind* one might assume that the federal government has carte blanche in the administrative state; it does not.[124] For, as state and local regulators urge, the conditions in this country vary greatly from place to place and that fact accounts for a great many aspects of the Act. The federalism of the regime, in short, is not merely a complicating wrinkle but rather a foundational reality.[125]

2. Achieving a "Healthy" National Environment

Another constant EPA's air regulators have established is that significant ambiguities will qualify *any* environmental quality standard no matter the effort mounted to prove conclusively the necessary causal links between pollutants and adverse health or welfare effects. With an element like lead, thus, the dose really is the poison. When, under court order,[126] EPA set its NAAQS for lead, it began with the uncontroversial finding that this element—literally pervasive in the earth's crust—would "cause or contribute to air pollution 'which may reasonably be anticipated to endanger public health or welfare.'"[127] Unremarkably, no party to the lead rulemakings surrounding the NAAQS contested this "finding": lead is certainly toxic.[128] What *was* controversial—indeed, what EPA itself never did prove conclusively—was the amount of lead in a human body at which adverse effects are observable. Because lead is an ineradicable part of our environment and therefore of our physiology the only thing

tempts to isolate the dose level at which its risks become significant. *See infra* notes 126-48 and accompanying text.

118. *See, e.g.*, Wagner, *supra* note 18; Applegate, *supra* note 17.

119. *See* James Krier, *The Irrational National Air-Quality Standards: Macro- and Micro-Mistakes*, 22 UCLA L. Rev. 323 (1974).

120. Shep Melnick's 1983 study traced the regulatory politics of dispersion and transport stemming from the 1970 and 1977 Amendments. *See* Melnick, *supra* note 43, at 113-54. As a scientific and technical question, the predictive task is complex. Making federal law and federal-state relations turn on the accuracy of those predictions is something else altogether. *Id*. at 151-54 (describing the series of lawsuits and the outcomes arising from them as "muddling though").

121. "Section 110 [structuring the state implementation plan (SIP)-creating process] of the [CAA] is one of the most monstrous provisions ever created by the Congress. . . . [I]t would be hopelessly confusing to try to absorb it all in one sitting." John-Mark Stensvaag, Materials on Environmental Law 329 (1999). While the basic requirements for a legally sufficient SIP are explicitly set forth as 12 different elements in §110(a)(2), 42 U.S.C. §7410(a)(2), in practice the legislative text has become a kind of benchmark for many gargantuan, extraordinarily complicated structures which vary from state to state. Train v. Natural Resources Defense Council, 421 U.S. 60, 72, 5 ELR 20264 (1975).

122. Take, for example, the prevention of significant deterioration (PSD) program in the Act, necessitated by the national standard strategy. Given the disparately populated nature of the country, a national standard pegged to health thresholds will almost certainly invite pollution into the "clean air areas" lacking major industry/population centers. The PSD program was created first by EPA regulation in 1974 (spurred initially by a citizen suit) and then was adopted into the statute in 1977, later to be implemented by regulations in 1979. *See* Alabama Power Co. v. Costle, 636 F.2d 323, 346-51, 10 ELR 20001 (D.C. Cir. 1979). The PSD program has evolved around and in reaction to several of its own major regulatory bottlenecks. *See* Oren, *supra* note 58, at 64-68.

123. Phillip Reed described the slow progression of the federal government from playing only an "advisory role" to being the "senior partner" with "leverage to ensure the job was done and in accord with national priorities. . . ." Phillip D. Reed, *State Implementation Plans*, *in* 2 Law of Environmental Protection §11.02 (Sheldon Novick et al. eds., Envtl. L. Inst. 1988). But Reed then continued that "the Act puts EPA in full charge of the SIP process" by allowing "intrusive federal oversight" at certain key junctures. *Id*. In reality, while the Act has been a progression from less to more federal control, it has never rendered EPA so "sovereign." *See, e.g.*, Manchester Envtl. Coalition v. EPA, 612 F.2d 56, 10 ELR 20057 (2d Cir. 1979) (strictly limiting EPA authority vis-à-vis the states to that which is clearly stated in the statute); Pacific Legal Found. v. Costle, 14 Envtl. L. Rep. Cas. (BNA) 2121 (E.D. Cal.), *aff'd*, 627 F.2d 917, 10 ELR 20719 (9th Cir. 1980) (same); *see generally* William W. Buzbee, *Urban Sprawl, Federalism, and the Problem of Institutional Complexity*, 68 Fordham L. Rev. 57 (1999).

124. It was pursuant to the CAA and EPA's attempts to change state transportation policies in order to achieve the NAAQS that some of the earliest modern jurisprudence on the Tenth Amendment and its implied limitations on federal authority was created. *See, e.g.*, Pennsylvania v. EPA, 500 F.2d 246, 5 ELR 20618 (3d Cir. 1974); Brown v. EPA, 521 F.2d 827, 5 ELR 20546 (9th Cir. 1975); District of Columbia v. Train, 521 F.2d 971, 6 ELR 20007 (D.C. Cir. 1975); Maryland v. EPA, 530 F.2d 215, 5 ELR 20651 (4th Cir. 1975).

125. Consider the following. A federal mandate that a state (or some other subnational government) achieve an environmental quality goal is quite important independent of any requirement that someone polluting within that jurisdiction install the best pollution control technology available. May the state consider various politically important factors in how it distributes the pollution reduction burdens within its borders? What if doing so delays attainment of the goal? May EPA consider the "feasibility" of the plan created when accepting or rejecting it? These are questions the Act's federalism (and perhaps the U.S. Constitution's federalism) makes critically important. They might even be far more important than whether that state ought to adopt BAT or risk-based emission standards to achieve the federal mandate optimally. And while EPA is required to approve a SIP so long as it provides for the "implementation, maintenance, and enforcement" of both primary and secondary NAAQS whatever the means the state chooses to pursue those ends, *see* Union Elec. Co. v. EPA, 427 U.S. 246, 6 ELR 20570 (1976), significant discretion rests with EPA in the SIP approval process. *Cf.* 42 U.S.C. §7410(k)(3), (4) (authorizing partial and conditional SIP approvals). The power struggle itself has augmented the importance of two arms of state and local governments collectively, the State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO). These organizations have been especially important in certain CAA programs like new source review (NSR). *See* Michael Settineri, *Reforming the New Source Review Program*, 13 Fordham Envtl. L.J. 107, 148-51 (2001); *infra* notes 198-203 and accompanying text.

126. It bears mentioning in a review of a book uniformly critical of court-created delays in or dilutions of agency air pollution control in the United States how often in this field court orders have actually been agency action-forcing. In the case of lead, a suit by the Natural Resources Defense Council ended in an injunction directing EPA to list lead as a "criteria" pollutant, an action that set the NAAQS and SIP process in irreversible motion. *See* Natural Resources Defense Council v. Train, 411 F. Supp. 864, 6 ELR 20366 (S.D.N.Y. 1976), *aff'd*, 545 F.2d 320, 7 ELR 20004 (2d Cir. 1976).

127. Lead Industries Ass'n v. EPA, 647 F.2d 1130, 1136, 10 ELR 20643 (D.C. Cir. 1980).

128. The toxicological properties of lead have been known for centuries.

the NAAQS for lead could realistically do was reduce the airborne dose.[129]

EPA was vulnerable on the science underlying its NAAQS for lead in *Lead Industries Ass'n v. U.S. Environmental Protection Agency*.[130] High concentrations of lead in the human body were relatively well-studied phenomena at the time. But significant gaps in the research existed regarding lower concentrations—like those of the average "background dose."[131] Perhaps most importantly, EPA was unable to derive a stable relationship between air lead and blood lead levels. That is to say, EPA could not predict how lead levels in a human body would react when ambient air levels of lead changed. All efforts to create a ratio of one to the other ended in frustration[132] as did the efforts to identify the blood lead levels at which some observable effect occurred signaling an impending onset of "adverse health effects."[133] EPA survived the challenge to its standard only because of the deference the reviewing court paid its professional guesses.[134] The court of appeals resoundingly affirmed both EPA's process of setting the standard and the protectiveness of the standard set.[135]

Though the legislative history of the 1970 Amendments and earlier litigation had alluded to a prohibition on considering costs, the setting of this particular NAAQS prompted the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit to wax at length about how EPA's task could include *no* consideration of cost or "technological feasibility."[136] Unquestionably, the notoriety of the *Lead Industries* opinion since—indeed of the Act's NAAQS-setting process in general—stems from the fact that the government's entire decisionmaking process must be bereft of any consideration of cost, technological feasibility, or political practicability.[137] Of course, the NAAQS itself was to have exactly no

Cf. Feller, *supra* note 89, at 854-55 & nn.161-66 (discussing the scientific literature of lead toxicology). "Lead enters the ambient air from the burning of leaded gasoline by motor vehicles, the combustion of waste oil, the incineration of solid waste containing lead or lead compounds, and from lead smelters, iron and steel plants, and battery manufacturing plants." *Id*. at 855.

129. It was well known by the time EPA's rulemaking began in 1977 that, in sufficient concentrations in the blood, lead caused several serious health problems like anemia, renal failure, brain damage, and even death. 647 F.2d at 1138-41, 1156-62. It was also known that lead entered the body several ways only one of which was through the inhalation of ambient air. *Id*. at 1136:

> There are three major sources of the body's lead burden. In most people the largest source is diet. Another source, particularly in children, is the habit of placing hands, objects, and materials in the mouth. The third major source is ambient air; airborne lead is deposited in the respiratory tract as a person breathes lead-contaminated air and is subsequently absorbed into the bloodstream.

And lead is lead: "[o]nce . . . in the bloodstream its source is immaterial." *Id*. Unlike many other pollutants whose primary effects remain within the respiratory tract, lead like other metals is transferred to the circulatory system and efficiently delivered throughout the body. But the multiplicity of sources compounded the difficulty of creating a health-based ambient air concentration limiting lead's emission into the atmosphere. Setting an ambient concentration keyed to a sensitive subpopulation that first experiences anemia from lead exposure, thus, would hardly be a standard "the attainment and maintenance of which . . . allowing an adequate margin of safety, [is] requisite to protect the public health." 42 U.S.C. §7409(b)(2).

EPA was therefore forced to find three very difficult variables at once: (1) a concentration in human blood at which a total body lead burden manifested some "adverse effect," (2) a cushion sufficient to protect sensitive subpopulations by ensuring that the whole population's blood lead levels remained below the level at which adverse effects manifest themselves, and (3) an ambient air concentration small enough to ensure that the plurality of lead sources would not aggregate to the selected blood lead level. Locating all three of these (causally interconnected) thresholds was necessary in setting the NAAQS. Needless to say, it was a colossal regulatory bottleneck: many unknowns, many stakeholders, and significant amounts of government-originated and government-supervised research.

130. 647 F.2d 1130, 10 ELR 20643 (D.C. Cir. 1980).

131. The statistical methodology EPA employed assured (in theory) that the blood lead levels of 99.5% of the population would be below the thresholds at which the identified subclinical effects occurred. *Id*. at 1141-45. This entailed several standard (if not unchallengeable) assumptions about population behaviors. *Cf. id*. at 1142 n.18 (noting EPA's doubts about assumption that blood lead levels would be "lognormal" in distribution). One of the more significant gaps in the record, though, underlay EPA's assumed contribution of non-air sources of lead, e.g., diet. The scientific basis for the value selected to represent non-air contributions, though, remained shrouded in mystery throughout the rulemaking. Furthermore, it was plausible to assume, in fact, that EPA had selected many of the values it did because of the Centers for Disease Control's (CDC's) decision to use similar numbers in its screening tests for "elevated" blood-lead levels in children. *See id*. at 1139 ("The Criteria Document did . . . note with approval the 1975 guidelines issued by the [CDC], which use elevated EP at blood lead levels of 30 μg Pb/dl as the cut-off point in screening children for lead poisoning."). And, as Professor Feller has argued, minute changes in this value—given its magnitude relative to the overall allowable lead burden—would have dramatically altered the stringency of the final NAAQS EPA selected. *See* Feller, *supra* note 89, at 861-64.

132. EPA narrowed the range of possible ratios to anything between 1:1 and 1:2, or roughly plus or minus 100%. *Lead Indus. Ass'n*, 647 F.2d at 1162-63.

133. EPA identified a set of blood chemistry effects it termed "subclinical." *See id*. at 1139 & n.11. These effects were manifested before those that are deemed symptomatic of a disease. The subclinical effects were used to key the standards in order to provide the necessary margin of safety and were combined with a statistical technique to do so across the whole population. *Id*. at 1138-45. The subclinical effect EPA focused upon was lead's propensity to cause an elevation in a certain kind of protein instrumental in the production of red blood cells. The elevation of this protein was not itself harmful. Rather, it constituted what EPA believed to be the first step of "steadily intensifying adverse effects as blood lead elevations increase." *Id*. at 1139.

134. 647 F.2d at 1163 & n.88. In fact, what is most remarkable about the *Lead Industries* opinion are the several different ways in which EPA made "arbitrary" choices—in the sense that reason did not necessarily dictate them—while still pulling out a victory. As an aside, this kind of case blunts the usual criticism of courts in the administrative state as overly officious or meddlesome interlopers in matters otherwise committed to expertise. *See, e.g.*, CHASING THE WIND, *supra* note 1, at 35-37.

135. Furthermore, the court upheld the standard with a confidence in EPA's authority that, in hindsight, seems to anticipate the Court's Chevron, U.S.A., Inc. v. Natural Resources Defense Council, 467 U.S. 837, 14 ELR 20508 (1984), watershed decision four years later. This is no place to rehearse the arguments on the standard of review, but the court of appeals' language in *Lead Industries* bears mentioning. Despite serious questions being raised on procedural, methodological, and substantive grounds, the court repeatedly stated that its attitude toward the standard-setting process was "highly deferential" and that it would begin from a presumption that EPA's choices were valid. 647 F.2d at 1145, 1146 & n.29, 1147. It also noted how the Act made an explicit delegation of authority to EPA—not to the courts—to set ambient air quality standards. *See id*. at 1147 n.32 (finding deference "particularly warranted" where legislation delegating authority to an agency was written with assistance from that agency).

136. *See* 647 F.2d at 1148-56, 1183-84. Melnick reported that this interpretation and its role in the litigation originated with the Office of General Counsel at EPA and probably for strategic, i.e., litigation-related, reasons. *See* MELNICK, *supra* note 43, at 278-79.

137. This, of course, includes any cost-benefit analysis done by the Office of Management and Budget pursuant to a series of executive orders. *See* SUNSTEIN, *supra* note 18, at 19-23. Generations of law and economics academics have recoiled in horror from this aspect of the

effect on emitters of lead nor on lead's ambient air levels from state to state.[138] That is to say, the real regulatory control of emitted lead would come only through the SIPs of 50 different states, the District of Columbia, and 5 territories. Considerations of cost and feasibility are legitimate and even important in the creation of SIPs.[139]

Furthermore, the face of the record itself severely undercut the idea that EPA had not considered cost or practicability in setting its standard. This is especially puzzling given the D.C. Circuit's diatribe about the Act's supposedly explicit prohibition on the consideration of cost or practicability.[140] But consider: EPA worked to assure that 99.5% of the population would, with full attainment of the standard, have blood lead levels below the set thresholds. That most certainly is a "great majority" of the population.[141] But it is not everyone. And if "public health" means everyone,[142] the .05% ignored on EPA's balance sheet are left unprotected. They are unprotected or unaccounted for, that is, unless some other factor balanced out their relevance as statistical persons.[143] Put differently, it could only be wrong to pursue the admittedly costly protection of that last .05% if cost was a legitimate factor, something the court went to great lengths to deny.[144]

But this is emblematic of pollution control itself. Lead is like so many other unintended consequences of industrialized life such as mercury, asbestos, vinyl chloride, sulfur dioxide, nitrogen—the list seems endless. When we strive to render "safe" the concentrations of these pollutants permitted to escape from our industrialized economy, we often find that science is incapable of discharging its task at the precise moment performance is demanded. Almost always, the best that can be achieved are concentration levels at which no observable effects occur or limitations on emissions that are "feasible" here and now. As a result, the pull of practical reasoning takes over, allowing other factors to leak into the analytical vacuum created.

3. Practical Reasoning and the Concept of Risk

The simplest explanation for "anomalies" like that in the *Lead Industries* opinion is that other, implicit factors enter the calculus and courts know it.[145] That dirty little secret, though, is hardly a satisfying explanation of *Lead Industries* or risk-based standard setting generally, and I take it that Morag-Levine's point is to use this not-so-secret peaking as a way to attack the legitimating myths supporting risk-based setting as a regulatory policy.

The classic issue here, as some have argued at length,[146] is

CAA. In theory, if EPA found that a "criteria pollutant" occurred in sufficient concentrations to constitute a threat to public health, the standard should be set wherever would be "requisite" to remove that threat—whatever the consequences. *Chasing the Wind* refers to it as the "absolutist promise" of the Act, CHASING THE WIND, *supra* note 1, at 17, although that is but a prelude to its rejection of the CAA as obsessed with the unknowable. *Cf. id*. at 17-18, 24-26.

138. American Trucking Ass'n v. EPA, 175 F.3d 1027, 1061, 29 ELR 21071 (D.C. Cir. 1999) (Tatel, J., dissenting), *rev'd sub nom.* Whitman v. American Trucking Ass'n, 531 U.S. 457, 31 ELR 20512 (2001):

> EPA regulates primarily by setting standards for states to develop their own plans. Indeed, because states have three years to submit implementation plans, which are themselves subject to notice, comment, public hearing, and frequent renegotiation, we will not know for years precisely how [these] NAAQS will actually affect individual businesses. Only if a state fails to produce an acceptable plan can EPA terminate federal highway funds or impose its own implementation plan. Because the [Act] gives politically accountable state governments primary responsibility for determining how to distribute the burdens of pollution reduction and therefore how the NAAQS will affect specific industries and individual businesses, courts have less reason to second guess . . . .

139. *Cf.* Union Elec. Co. v. EPA, 427 U.S. 246, 266, 6 ELR 20570 (1976) ("[T]he most important forum for consideration of claims of economic and technological infeasibility is before the state agency formulating the implementation plan. So long as the national standards are met, the State may select whatever mix of control devices it desires."). Lest the distinction between the NAAQS and the SIP sound like hyperbole, it should be recalled that several NAAQS still have not been attained in many areas of the country and are not mandated for attainment until, in some cases, 2015. *See* REITZE, *supra* note 67, at 62-70.

140. Perhaps the best explanation of the NAAQS structure to date is one that takes account of the court-agency dialogue about a "valid" setting of the standards in the face of pervasive scientific uncertainty. *See* Craig N. Oren, *Run Over by* American Trucking*, Part I: Can EPA Revive Its Air Quality Standards?*, 30 ELR 10653, 10670 (Nov. 1999) ("[P]recisely because cost considerations cannot be invoked as a rationale for the decision, the Administrator is discouraged from putting much weight on costs. This acts to limit, though not eliminate, the Administrator's ability to decline to be protective.").

141. *Lead Indus. Ass'n*, 647 F.2d at 1142 n.17.

142. There is good reason to think that, in the context of §§108 and 109, "public health" means roughly everyone, right down to the most sensitive subpopulations. *See, e.g.*, American Lung Ass'n v. EPA, 134 F.3d 388, 28 ELR 20481 (D.C. Cir. 1998) (remanding EPA's SO_2 standards for further explanation as to why it chose not to protect those with acute asthma from "exposure events" of five minutes or less).

143. It is no answer to say that the statistical methodology used did not permit achievement of "safe" population blood lead levels to greater than 99.5%. Statistically it is impossible to achieve 100% compliance in a standardly distributed population. But to achieve 99.9% compliance (the statistical equivalent of perfection), EPA would only have had to ratchet its standard down another standard deviation between the predicted mean blood lead level and the chosen subclinical effects threshold. *Cf.* Feller, *supra* note 89, at 860-61 & nn.208-10. In other words, EPA was put to a choice between two equally valid statistical benchmarks and the one it selected was different from the one it did not only insofar as the latter would mean a greater cost (and more pollution control).

144. It can fairly be said that EPA is in the *habit* of being "practical" in this fashion in the midst of setting or adjusting NAAQS—something one would not expect if the letter of the law was being followed. *See* Oren, *supra* note 140, at 10660-62 ("Indeed, EPA decisionmakers have admitted that they examine cost data when deciding on the levels of the standards.").

145. This is also probably the best explanation for Congress' and EPA's approach to the setting of risk-based standards of all kinds over the last three decades: both institutions "peak" at costs and practicability and put at least tacit reliance upon estimates of the "feasible." Both institutions are irredeemably pragmatic; both are users of "practical reasoning" in place of more analytically pristine and formal "absolutes." *See* SUNSTEIN, *supra* note 18, at 53-77. By "practical," I mean reasoning from any number of premises and/or biases that are not necessarily commensurable in any strict sense. *Cf. id*. at 62-75 (describing various "qualitative factors" that "ordinary people" use to rank order different types of risk and the desire to avoid them). Such reasoning is not necessarily rational in a strict sense, especially when the costs of risk avoidance can be weighed against each other and used to prove "irrational" rank orderings by agencies and legislatures alike. *See id*. at 76 ("Ordinary people . . . use heuristics that lead them astray. When they are thinking well, they are generally concerned with the extent of the danger—both its severity and its probability. Nonetheless, people do not consider statistically equivalent risks to be the same. Some risks, and some deaths, are especially bad.")

146. *See, e.g.*, Graham, *supra* note 74, at 132-37; Ross-McCubbin, *supra* note 92, at 42-51; *see also* Thomas O. McGarity, *Regulatory Analysis and Regulatory Reform*, 65 TEX. L. REV. 1243 (1987); THOMAS O. MCGARITY, REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY (1991); Frank

that if costs and practicability are being smuggled into the administrative process, two possibilities exist. Either this factoring of cost is somehow legitimate, in which case it ought to be explicitly legislated, or it is illegitimate, in which case courts ought to root it out and enjoin it. The very formidable challenge presented by these possibilities, though, is more political than legal: a significant percentage of the American electorate finds the explicit "costing" of human lives to be (at the very least) highly distasteful.[147] In other words, the overt weighing of cost and practicability against health benefits, whether episodic or systemic, is being barred by a kind of political judgment. This judgment stems from the accountability of our executive and legislative branches to a public which has expressed a kind of exclusionary reason—a reason that precludes an otherwise coherent balancing of competing values.[148] For a governance structure that standardizes *risk*[149]across a broad spectrum of threats to public health and welfare, though, it is virtually impossible to effectively exclude such factors from legal decisionmaking, however "ethically challenged" it may seem.[150]

In short, it is a political judgment that explains structures like the NAAQS. Explicitly considering cost as a factor weighing against some number of statistical lives is a political impossibility. So while a scholar of the "rational actor" would insist that ordinary people accept significant risks when the payoffs are high enough,[151] the politician (and agency administrator) responds that a "public" is never rational in this way.[152] The mismatch between the two has fueled a mythology surrounding the NAAQS: the widespread belief that a regulatory structure must be *either* explicitly about costs, practicability, and what is "feasible" (so-called technology-based standards) *or* about environmental quality, risk reduction, and technology-forcing (so-called risk-based standards). What makes this mythology so empty is the pollution control system we actually have that contradicts it.

C. The Mythology of Choosing Either Technology- or Risk-Based Regulation

For most of the 1980s and 1990s, the question that occupied

B. Cross et al., *Discernible Risk—A Proposed Standard for Significant Risk in Carcinogen Regulation*, 43 Admin. L. Rev. 61 (1991).

147. "Costing" is a term used to describe the analytical process regulators conduct in a "cost-benefit analysis" of, for example, a health/safety regulation. For example, if a widget will prevent five deaths and the widget costs $5, those statistical lives are viewed as costing $5. Some Americans would go even further to say that it is morally outrageous to say the widget costs too much, even granting that the "people" being costed are "statistical" in nature and that the costs are much greater than $5. *Compare* Lisa Heinzerling, *Markets for Arsenic*, 90 Geo. L.J. 2311 (2002) (arguing that cost-benefit analysis is of a highly qualified utility in toxic risk regulation), *with* Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 Geo. L.J. 2205 (2002) (championing cost-benefit analysis as the only "rational" method of priority selection). Unfortunately, so long as the available science is good enough to estimate a mortality rate from predicted exposures, regulators are usually able to at least put the "statistical lives" on the other side of the equation—notwithstanding any other uncertainties that may remain. In this sense, science-based regulation often literally proves too much and too little at the same time.

148. This is where the distinct kinds of claims advanced by law and economics and environmental justice intersect. *See, e.g.*, Been, *Locally Undesirable*, *supra* note 109. There is some economic justification for concentrating locally undesirable land uses into tightly packed districts and separating those from more "valuable" real estate. The "distributional inequities" associated with such a policy and in particular the racial inequality that has generally resulted where such economic reasoning has prevailed, however, are good reasons to doubt the first set of reasons. *See generally* Been, *What's Fairness Got to Do With It?*, *supra* note 109; Robert Bullard, Dumping in Dixie: Race, Class, and Environmental Quality (1990).

149. Note that some of the "pollutants" we think of as risks to public health/welfare occur naturally, sometimes in surprisingly high concentrations. Besides lead, other heavy metals—zinc, for example—enter the ambient air naturally in forms that are both harmful and innocuous. Zinc is a necessary part of a human diet in certain doses. *See* Notice of Zinc and Zinc Oxide Assessment, 52 Fed. Reg. 32597, 32598 (1987) ("Zinc is an essential element necessary for the growth and development of all animals, including humans."). Nonetheless, it poses a risk even in its natural state. *Id*. at 32,597 ("Natural sources of zinc (e.g., windblown soil, volcanic emissions) have been estimated to constitute about 13% of the total emissions to the atmosphere."). In its investigation of zinc and zinc compounds in consideration as HAP candidates, EPA found that the cancer risks associated with zinc/zinc-oxide inhalation and certain other absorption pathways were significant only at levels far greater than those already prohibited by the particulate matter NAAQS and that "the data available at this time are insufficient to indicate health concerns that require further regulation" as a HAP. *Id*. at 32,599. Of course, if we mean to control "pollution" as an anthropogenic phenomenon, the background levels of such substances present in nature are really just givens. The second leading cause of lung cancer in the United States, for example, is thought to be radon. National Cancer Institute, Radon and Cancer: Questions and Answers (2002), *available at* http://cis.nci.nih.gov/fact/3_52.htm. Yet radon is something most Americans encounter through its being leaked into their own homes from subterranean, non-human sources we would not usually call "pollution."

150. *See* Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 Colum. L. Rev. 941 (1999). Many Americans, though, are equally opposed to limitless regulation of minute pollution problems creating minute risks. Justice Stephen Breyer describes regulatory overreaction toward some risks which are, by themselves, "so small as to be virtually meaningless." Breyer, Breaking the Vicious Circle, *supra* note 18, at 13. He also bemoans the irrationality of a public which demands those risks be regulated irrespective of cost, *cf. id*. at 19-29 (describing literature showing the inconsistency of public demands for regulation of infinitesimally small risks at little cost), and refers to risk-based regulation of such hazards completely excluding considerations of cost/feasibility as the "problem of the last [10%]," i.e., the irrationality of spending the regulatory resources necessary to eliminate such risks given the opportunity costs entailed in doing so. *Id*. at 11-19. This is a common chord in policy debates about health/safety regulation more generally. *See* Sunstein, *supra* note 18.

151. Sunstein, *supra* note 18, at 47-48, 74-75, 214-16.

152. Adding to the frustrations of risk analysts is the fact that, even when EPA makes such supposedly cost-independent judgments someone is always there to crunch the numbers and arrive at a cost/benefit price tag—usually using it in a very vocal critique of the agency's "rationality." *Cf.* Breyer, Breaking the Vicious Circle, *supra* note 18, at 15 ("Experts calculate the [benzene emission standards] . . . save a total of 3 to 4 lives per year, at a cost of well over $200 million; one regulation costs approximately $180 million to save a single statistical life.").

It may be an exaggeration to say that a public is never rational in these contexts. As Professor Farber has argued, the "slippage" that generally inheres in environmental statutory commands that are perceived as being very strict and are thereafter implemented very flexibly may be a reflection of a strategic bargaining position taken by the public on account of the "dynamics of the implementation process" and the likelihood that particularly powerful individuals will resist the public's agents. *See* Daniel A. Farber, *Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law*, 23 Harv. Envtl. L. Rev. 297, 316-18 (1999) (calling such strict statutory requirements "opening gambits in a prolonged bargaining process" between regulators and regulated parties). Furthermore, given the possibility of various *failures* of rationality, it is not necessarily true that a rational actor must always prefer the least-cost option in risk reduction strategies. *See* Jon Elster, Ulysses Unbound: Studies in Rationality, Precommitment, and Constraints (2000).

the field of pollution control was whether the United States ought to "switch" its means of regulating pollution from one predominantly based upon the mandating of certain technologies at identified "major stationary sources" to one based upon the achievement of certain environmental quality goals.[153] This essay is no place to take issue with the normative claim about which sort of regulatory strategy actually produces less pollution.[154] For present purposes it is unnecessary to do so because the prior descriptive claim is the better target. *Chasing the Wind* is powered in large part by the descriptive claim that our common-law state's pollution control regime is based mostly upon the achievement of environmental quality goals. If there is anything about the CAA that is more myth than fact, it is this claim.

For every NAAQS in air pollution control law and policy, there is a SIP—a part of the regime where cost and feasibility predominate as factors of choice.[155] It is the major shortcoming of the academic and political debate about air pollution control in the United States that such false choices are permitted to dominate the public agenda.[156] *Chasing the Wind* does little if anything to reframe this debate into something more productive. What the regime is straining from today are the monumental framing effects of those earliest legislative building blocks laid in the 1960s and 1970s and how they are interpreted in *this* legal culture. An energetic critique of those formative choices might force a broader reconsideration of the pollutant-by-pollutant strategy, the federal power struggle, and/or the mythological rift supposedly separating health-based standard setting and technology-based standard setting.

Part III suggests the outlines of such a critique, borrowing heavily from others who have begun it elsewhere. Part III makes an assumption similar to one in *Chasing the Wind*: the administrative state's approach to pollution has degenerated into a predictably dysfunctional pattern. It goes further, though, and traces the pattern regardless of emphases on technology- or risk-based standards.

III. The Failures of Pollution Control in the Administrative State

It is a strength of Morag-Levine's study that it presumes the evolution of the American state and the agency/court model of law-making processes were central in forming modern U.S. air pollution control policy. Unquestionably, the power of our judiciary and the influence lawsuits and litigation have exerted are of central importance to that story. But as

153. The locus classicus advocating this "switch" is Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 Stan. L. Rev. 1333 (1987). An earlier article, Richard B. Stewart, *Regulation, Innovation, and Administrative Law: A Conceptual Framework*, 69 Cal. L. Rev. 1256 (1981), contrasted "command-and-control" regulation to "economic incentive systems," where the latter simply "encouraged" regulated persons to behave in ways that would reduce risks to public health or welfare. *See id*. at 1315. Much of the debate over environmental statutes in the United States has centered on this question, but that does not necessarily make it a fruitful or especially interesting debate today.

154. Morag-Levine argues that absolute pollution reduction figures are not necessary to arrive at the conclusion that technology- or feasibility-based controls are "superior," all things considered. *See* Chasing the Wind, *supra* note 1, at 184-88.

155. To take it even further, for every uniform standard meant to guarantee a healthy national environment there is a "federal" phase of decentralized implementation wherein state and local regulators are empowered to make allocative judgments. The Court's early opinions highlighted the Act's federalism on this point. *See* Train v. Natural Resources Defense Council, 421 U.S. 60, 79, 5 ELR 20264 (1975):

> The Act gives [EPA] no authority to question the wisdom of a State's choices of emissions limitations if they are part of a plan which satisfies the standards of §110(a)(2) . . . Thus, so long as the ultimate effect of a State's choice of emission limitations is compliance with the [NAAQS], the state is at liberty to adopt whatever mix of emission limitations it deems best suited to its particular situation.

Union Elec. Co. v. EPA, 427 U.S. 246, 251, 6 ELR 20570 (1976) ("Each State is given wide discretion in formulating its plan, and the Act provides that the Administrator "shall approve" the proposed plan if it has been adopted after public notice and hearing and if it meets [the] specified criteria."). It has continued unabated in the lower courts. *Cf*. Virginia v. EPA, 108 F.3d 1397, 1406, 27 ELR 20718 (D.C. Cir. 1997) ("[W]e are aware of no case (EPA has cited none) supporting the proposition EPA now urges upon us, namely, that under [CAA §]110 EPA may condition approval of a state's implementation plan on the state's adopting a particular control measure . . . ."); American Corn Growers Ass'n v. EPA, 291 F.3d 1, 8, 32 ELR 20658 (D.C. Cir. 2002) (invalidating EPA rulemaking requiring states to engage in regional planning to achieve ambient air quality goals because it "impermissibly constrain[ed] state authority" under the Act).

156. *Chasing the Wind* in places virtually ridicules the risk-based (what it calls the "harm-based") aspects of the CAA like the NAAQS. *See, e.g*., Chasing the Wind, *supra* note 1, at 17-19. It compares them to the more "rational" approach to air pollution taken in Germany and finds them lacking a basic common sense. In Germany the state "bases [regulatory] interventions not in evidentiary demands for scientific proof of harm, but in governmental expertise and in the requirement that industrial operators undertake feasible measures of mitigation." *Id*. at 180. This has always been the allure of BAT: in principle, it ought to work as a sort of incremental ratchet, slowly but surely reducing pollution levels, slowly but surely approaching the goal of zero pollution. German society takes a less adversarial attitude toward regulation and, thus, such "feasible" improvements in industrial processes are implemented independent of their proven benefit(s). In *Chasing the Wind*, the "ideas" lying behind these differences sound very much like the standard American exceptionalism. Here, America's "distrust of administration" manifested in the "defining characteristic of th[e] 'common law state,'" namely an "insistence on judicial oversight to check its potential for abuse," *id*. at 181, has resulted in a policymaking failure, due mostly to an unwarranted paranoia about government. *See id*. at 188 ("The powerful logic of the common[-]law state lies in the belief that a slippery slope separates sovereign governmental pursuit of the common good from despotism.").

Yet this thesis itself reveals the limits of such comparisons and, indeed, the limits of BAT or technology-based regulation by itself. At least three questions are presented. First, do Germans' comparatively accepting attitude toward regulation explain Germany's feasibility-based regime or vice versa? Second, to what does German air pollution control aspire without at least some (minimal) theory of the harmful or the good? The state still must at a minimum define what constitutes a "pollutant," which is itself a normative judgment. *See supra* note 74 and accompany text. A third and final question goes to the dearth of evidence supporting the conclusion that America would do better to focus only on the "feasible" reductions in pollution. It is an *empirical* question whether such a BAT approach to pollution control actually achieves better results than the risk-based elements of American pollution control. Unfortunately, it is also an empirical question for which little-to-no good data exist. *See generally* Davies & Mazurek, *supra* note 68. America may truly be an adversarial political and legal culture, as Morag-Levine herself maintains. *See* Chasing the Wind, *supra* note 1, at 9, 185-86:

> [T]he decision between either technology or risk standards is among the most significant policy choices that determines whether the chemical regulatory process will be an adversarial or consensual one. . . . But the rights model for control of pollution has proven itself neither under the common law nor under its statutory risk-based progeny.

But then who is to say that unilateral disarmament by the public or its agents in the executive and legislative branches is necessarily an improvement?

Part III argues, the *indirect* pressure courts and litigants have exerted upon agencies, presidents, and Congress is more important.

Common-law courts hearing nuisance actions may have derived a "familiar trivializing formula" in order to rule certain air pollution problems out of the game, so to speak.[157] Some of the odors trivialized by that system may even be worth reconsidering.[158] But a still more systemic influence over air pollution control policy throughout the 20th century stems from the judiciary's allocation of power to the president, the Congress, the agencies, and the states in the administrative state. Courts are at their most powerful in discharging that allocative role.[159] In short, Part III paints a picture of the tensions between the political, judicial, and administrative actors very different from that painted by *Chasing the Wind*. Under the white-hot intensity of partisan political struggles much larger than any particular standard-setting episode, BAT standard-setting agency actions have become but a prelude to litigation—just like their risk-based counterparts. The CAA's new source review (NSR) program vividly illustrates.

A. NSR: Dysfunctional Technology Regulation

Much of the CAA is technology-based.[160] Some of it takes the form of so-called BAT standards: the Act pushes technological improvements by mandating achievements from a regulated person which some *third party* has demonstrated are "available."[161] NSR, a program designed to force the technological curve upward in the industries it regulates independent of any specific air quality goal,[162] has been executed "rationally" and federally. And contrary to what is suggested in accounts like *Chasing the Wind*, NSR is every bit as bottlenecked and ineffectual as its risk-based counterparts.

Even the abridged history of NSR would be impertinently long here,[163] so a thematic sketch must suffice. The logic of NSR is pure BAT: the achievement of all feasible pollution reductions from the moment a major source is designed and built or significantly redesigned and rebuilt.[164] This timing is premised on the belief that pollution control technology is best engineered and implemented within such windows of design/redesign because it is most efficiently done there and not after a source has been engineered, built, and operated.[165] Based on this bifurcation of NSR through timing, it works through two distinct "preconstruction" permitting requirements: one for new "construction," the other for qualified "modifications" of existing plants.[166] The intent is to incorporate the pollution control techniques directly into the cost structure of facility creation.[167] But this effort creates

157. Chasing the Wind, *supra* note 1, at 100.

158. As mentioned, one of the themes of the book is the "perpetual mobilization" necessitated by the American legal system's nuisance regime. *See, e.g.*, *id.* at 103-23. In the case of odors not proven to cause significant adverse health effects, say, for example, low concentrations of ammonia, people who are "merely" inconvenienced are often without a remedy. *Cf. id*. at 128-30 (contrasting the smell of sewage with the "greater dangers" of those smells actually regulated by the nuisance regime). Yet trivialization of real injuries is more directly (and perhaps better) remedied through reforms of the common-law standards themselves—something tort lawyers are very capable of doing. *See, e.g.*, http://www.resetwisconsin.org/pages/1/index.htm (tort lawyer Steven Hiniker detailing considerations of toxic tort lawsuit against utility companies to address harms not covered by CAA enforcement actions brought by EPA). And both odors and acutely toxic problems are still regulated as nuisances. *See, e.g.*, Rust v. Guinn, 429 N.E.2d 299, 305 (Ind. App. 1981) (odors from chicken farm held a nuisance). Espinosa v. Roswell Tower, Inc., 910 P.2d 940 (N.M. App. 1995) (finding New Mexico's "worst air pollution ever" arising from various violations of EPA regulations during asbestos removal operation to be a public nuisance per se). The CAA itself specifically saves common-law standards more stringent than those in the Act or EPA's regulations. *See* 42 U.S.C. §7604(e).

159. In fact, it is probably more than coincidence that the most notorious precedent insulating administrative agency discretion from judicial review by citizen plaintiffs came in a CAA rulemaking controversy. In Chevron, U.S.A., Inc. v. Natural Resource Defense Council, 467 U.S. 837, 14 ELR 20507 (1984), the Court held that EPA's sudden reinterpretation of a CAA provision based solely on a change in political leadership was valid so long as the interpretation was "reasonable" and the statutory provision being interpreted did not contradict the agency directly.

160. Nowhere is this more apparent—and more apparently dysfunctional—than in the Act's Title II, "mobile sources." Americans' love affair with the automobile has constituted much of the history of air pollution control policy in the United States. *See generally* Craig N. Oren, *Getting Commuters Out of Their Cars: What Went Wrong?*, 17 Stan. Envtl. L.J. 141 (1998).

161. The new §112 does as much. *See supra* notes 96-101 and accompanying text.

162. NSR actually works in two programs with very different ambient air quality goals. One operates to keep air that is of higher quality than the NAAQS from being degraded significantly and the other operates to improve the air in areas not currently attaining the NAAQS. *See infra* note 167.

163. This history was adroitly described in the recent report of National Academy of Public Administration (NAPA) on NSR. *See* NAPA, A Breath of Fresh Air: Reviving the New Source Review Program 17-58 (2003) [hereinafter NAPA Report].

164. *See* Settineri, *supra* note 125, at 109-22.

165. An instructive contrast here would be with a nuisance action resulting in an injunction mandating the "premature" mothballing of a significant investment in productive enterprise of some kind. *See supra* notes 44-55 and accompanying text. I express no opinion on whether the nuisance injunction (or an infeasible regulatory design requirement) could fairly be attacked as a deprivation of "liberty interests" or "property" belonging to the source. *But cf.* Calabresi & Melamed, *supra* note 49, at 1121-22 (arguing that such a rule of compensation might be optimal under certain conditions). One suspects, though, that a particular strand in our constitutional traditions of liberty and property—and perhaps, in the not-so-distant future, our judiciary's view of those concepts—could find them an impingement upon a constitutionally protected interest. *See, e.g.*, Barnett, *supra* note 35, at 350-53; Richard A. Epstein, Takings: Private Property and the Power of Eminent Domain (1985).

166. The type of permit a source must obtain prior to "construction" or "modification" depends upon location and air quality. Where air quality is better than the NAAQS the source must incorporate "best available control technology" to be awarded its permit to build or modify. Where the area still has not attained the NAAQS in question, the source must meet even stricter standards—demonstrating it will operate at the "lowest achievable emission rate"—and that it can obtain offsets from other sources for whatever emissions it will create once it begins operating. Both of these sets of strictures operate through SIPs. *See* 40 C.F.R. §165 & app. S to pt. 51; 40 C.F.R. §51.166. The 1970 Amendments first introduced this distinction between old and "new" sources through §111, directing EPA to create so-called NSR standards. *See* 42 U.S.C. §7411; *supra* note 100.

167. For practical purposes, however, these are two separate programs. As a panel of NAPA concluded last year:

> NSR is fundamentally two programs, both requiring permits for releasing air pollution. The first requires that new major sources be built with modern, cleaner equipment to minimize air pollution. The second part requires that similar upgrades be installed when existing plants are modified in ways that may significantly increase their emissions.

NAPA Report, *supra* note 163, at 1.

what has been called the "old-new problem"[168] and it has seriously complicated many technology-based subprograms of the Act (and pollution control more generally).[169]

The old-new problem arises in any technology-forcing program implemented, as NSR and other CAA programs have been, on a rolling basis. NSR operates on a rolling basis because older facilities are grandfathered from new standards until such time as they trigger them by redesigning or rebuilding—thereby sunsetting their more favorable regulatory status.[170] The "problem" is that most of these facilities still have not triggered NSR,[171] crippling the program and keeping a vital dimension of the CAA wholly inapplicable to the worst sources of air pollution in the nation.[172] That problem is ignored by *Chasing the Wind* yet it is symptomatic of what ails pollution control efforts in the administrative state.[173]

1. Retrofitting Old Sources

The old-new problem has forced NSR into the limelight over the last two years,[174] but its troubles go back well over a decade and are structural in nature. In practice, retrofitting requirements such as NSR actually incentivize sources to protect and rely upon their grandfathering status as long as possible. Doing so avoids a costly and cumbersome regulatory burden; the NSR permitting process itself can drag on for many months perhaps significantly affecting competitiveness.[175] Frustratingly, a National Academy of Public Administration (NAPA) panel concluded that "many older coal-fired power plants emit far greater amounts of air pollution per unit of electricity produced than do more modern plants."[176] The reason is simple: either "noncompliance is widespread," or "facilities commonly take steps to avoid obtaining an NSR permit" by circumventing the program legally.[177] As is so often the case with pollution control in the administrative state, the legal domain of NSR has come down to the meaning of a few important phrases and the legal system's purchase on them.

First among the program's key terms is "modification": an old facility must undergo some qualifying modification to be NSR-eligible.[178] Not every "physical change" at a facility qualifies as a modification: long ago EPA exempted various "routine maintenance, repair, and replacement" activities.[179] But early in the 1990s, EPA slowly came to believe that NSR was being systematically avoided by major

168. *See* Peter Huber, *The Old-New Division in Risk Regulation*, 69 VA. L. REV. 1025 (1983).

169. Huber argues that it is usually an aversion to the "transition" costs associated with risk standards being set anew that have generated so much pressure to grandfather in fields like pollution control. *Id*. at 1063-67:

> Major changes in society's established economic order are costly. On the one hand, regulated industries are acutely sensitive to [the costs associated with retrofitting]. Businessmen will often acknowledge that predictable government—government that does not disrupt established expectations—is even more important to them fair or rational government. . . . [R]etrofitting is anathema to cost accountants because it is usually vastly more costly than making an identical but prospective change in design.

170. Absent the assumption that the grandfathered facilities could somehow undergo drastic and costly life-extension projects without triggering NSR, it seems logical to conclude that Congress intended all of the grandfathered facilities would eventually trigger NSR, whether located in a "nonattainment" or a "clean air area," or simply close. *Cf*. U.S. DEPARTMENT OF JUSTICE (DOJ), NEW SOURCE REVIEW: AN ANALYSIS OF THE CONSISTENCY OF THE ENFORCEMENT ACTIONS WITH THE CLEAN AIR ACT AND IMPLEMENTING REGULATIONS (2002) [hereinafter DOJ NSR Memo] (copy on file with author).

171. NAPA REPORT, *supra* note 163, at 87-88.

172. After a significant survey of NSR's legislative history, the NAPA panel found that NSR was intended by Congress to play a central role in achieving the Act's objectives, especially with respect to fossil fuel-burning utilities. *Id*. at 12-14. *Cf. id*. at 88 (fig. 5-2) ("pre-[CAA] boilers at coal- and oil-fired utilities constitute the largest portion by far of those in operation today"). One of the panel's findings was that "EPA's implementation of NSR has failed to fulfill Congressional intent by . . . [a]llowing the persistence of old, polluting equipment and production technology [and thereby creating] incentives for older facilities to continue operating . . . ."). *Id*. at 110.

173. It is possible to "benchmark" the emission rates from utility to utility, that is, and arrive at a devastating critique of the actual implementation of the CAA over the life of the NSR program. *See, e.g*., JOINT REPORT OF NATURAL RESOURCES DEFENSE COUNCIL ET AL., BENCHMARKING AIR EMISSIONS OF THE 100 LARGEST ELECTRIC GENERATION OWNERS IN THE UNITED STATES—2000 (2d ed. 2002) (showing massive disparities in emission rates among the nation's utilities).

174. A report by the U.S. Public Interest Research Group's Education Fund published in October 2003, focused attention specifically on "America's dirtiest power plants," a term the report applied to those "pre-1977 facilities" which had been "grandfathered" and allowed to employ "ancient or no pollution controls at all." *See* U.S. PIRG, LETHAL LEGACY: A COMPREHENSIVE LOOK AT AMERICA'S DIRTIEST POWER PLANTS 10 (2003) (copy on file with author).

175. "Although no monolithic view exists, industry's arguments for reform [of NSR] are generally based on the view that the program imposes economic and competitive costs on existing facilities. They argue that, in some cases, NSR imposes costs and creates incentives that produce outcomes directly contrary to NSR's goals for reducing pollution and encouraging equipment upgrades." NAPA REPORT, *supra* note 163, at 67. *Cf. id*. at 99 ("[O]lder plants can remain economically competitive in part because they do not bear the capital or operating costs of controlling emissions or upgrading their equipment.").

176. *Id.* at 110. "Because these plants were operating prior to 1977, EPA has not required them to install less-polluting equipment so long as they engage only in routine maintenance, repairs, or replacements, and their modifications do not significantly increase emissions." *Id*.

177. *Id.* at 111.

178. The Act defines "modification" as "any physical change in or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." 42 U.S.C. §7411(a)(4). EPA's relationship with this definition is long and tangled, but its most recent finalized interpretation exempted certain physical changes and changes in operation which can be characterized as routine "[m]aintenance, repair, and replacement." That was thought to include certain increases in the facility's production rate where that increase can be "accomplished without a capital expenditure on that facility," and any changes in hours of operation. 40 C.F.R. §§60.14(e), 52.21(b)(2)(iii). The Agency proposed and sought to finalize yet another change to this definition, but was enjoined by the D.C. Circuit from doing so. *See* New York et al. v. EPA, No. 03-1380 (D.C. Cir. 2003) (unpublished order, Dec. 23, 2003). For purposes of this discussion, I omit any consideration of the "net emissions increase" prong of the modification definition. *See* 40 C.F.R. §52.21(b)(3). For all of the enforcement cases with which I am familiar there is no issue as to this prong.

179. *See supra* note 178. NSR itself operates in two different overall programs: the prevention of significant deterioration (PSD) program and the nonattainment program. The PSD program applies in "clean air areas," i.e., places where the air is significantly below the NAAQS, and thus PSD ultimately ties allowable emissions to "increments" meant only to slow the rate of growth in pollution rather than to attain some NAAQS. The nonattainment program, conversely, works to do the latter. Both, though, include an NSR permitting component meant to put new and modifying sources through a preconstruction review. *See* REITZE, *supra* note 67, at 177-206.

While it was writing the 1990 Amendments, Congress quietly

sources which should have been undergoing its review but which were circumventing NSR by claiming that they were not "modifying" their plants. When EPA's enforcement arm began the process of examining several plant changes which they thought might constitute "modifications" triggering that facility's obligation to undergo NSR, they had unknowingly embarked upon a partisan-political journey that would extend more than a decade into the future. The investigations produced a raft of enforcement cases against utilities and other heavy industry for facility "modifications."[180] EPA has argued that various "maintenance and repair" activities at the plants should have triggered NSR but that the defendants completed them on the sly, so to speak—evading NSR permitting entirely.[181]

2. Enforcing NSR

The investigations were slow going for EPA, requiring thousands of hours of staff time.[182] But the filed cases have been even worse. What began as a series of extraordinarily complicated allegations supporting the ultimate conclusion that a covered "modification" had occurred at a covered facility,[183] soon became grounds for some sectors of industry to very publicly attack EPA's competence and credibility.[184]

This controversy became an issue in the 2000 presidential campaign and has become an even more significant—and potentially *scandalous*—issue of agency/administration relations since.[185] For while the Bush Administration was moving to "reform" EPA's NSR rules, it was simultaneously meeting behind closed doors with the parts of industry locked in the NSR struggle with EPA.[186] Under immense pressure to undercut the enforcement cases EPA had begun in 1999, the Administration did so.[187] And, indeed, the Bush

urged EPA to clarify its definition of modification. *See* NAPA Report, *supra* note 163, at 40 (quoting Senate Debate on the CAA Amendments, 1990 Conference Report, Committee Print No. 103-38, 103d Cong. (Nov. 1993), at 791-92):

> When drafting the 1990 Amendments . . . Congress attempted to address some of the concerns raised by the WEPCO decision with respect to the NSR . . . . But the Conference Committee deleted the proposed amendments without prejudice and urged EPA "to propose clarifications on the matter of what kind of changes constitute a modification to an existing source that will continue to protect local air quality while responding to some of the issues raised in the WEPCO debate."

180. The enforcement cases began on November 3, 1999, as lawsuits filed in several district courts against seven parent companies: American Electric Power, Cinergy, Ohio Edison (FirstEnergy), Illinois Power, Southern Indiana Electric & Gas, the Southern Company, and Tampa Electric Company. On March 1, 2000, EPA targeted an additional 12 coal-fired electricity-generating plants owned by American Electric Power, Cinergy, and Southern Indiana Gas & Electric Company. An explanation of all the technology mandates in the Act applicable to fossil fuel-burning utilities and the role of NSR therein is provided in Arnold Reitze Jr., *State and Federal Command-and-Control Regulation of Emission From Fossil-Fuel Electric Power-Generating Plants*, 32 Envtl. L. 369 (2002). The enforcement suits are detailed there as well. *See id*. at 389-90. An administrative enforcement action was brought against the Tennessee Valley Authority (a government corporation) on November 3, 1999. *See* Tennessee Valley Auth. v. Whitman, 336 F.3d 1236, 33 ELR 20231 (11th Cir. 2003). Finally, Duke Energy was brought into the suits on December 22, 2000. *See* Makram B. Jaber, *Utility Settlements in New Source Review Lawsuits*, 18 Nat. Resources & Envt. 22, 22 (2004). Jaber is a lawyer with Hunton & Williams, a firm that represents several of the defendants in the enforcement actions.

181. Jaber, *supra* note 180, at 23 ("In the lawsuits filed since 1999, EPA alleges essentially that the entire electric utility industry has been violating the NSR rules for the last twenty years."); *see also* Pamela Najor, *House Panel Seeks Answers From EPA on Enforcement Actions on Electric Utilities*, Daily Env't Rep. (BNA), Mar. 8, 2000. One of the first cases brought to trial, United States v. Ohio Edison Co., 276 F. Supp. 2d 829, 33 ELR 20253 (S.D. Ohio 2003), concluded its liability phase with a finding that the defendant had "modified" the facilities in question without undergoing the necessary NSR processes. *See id*. at 890.

182. EPA's Office of Air Quality and Planning spent literally hundreds of hours in collaboration with its regional offices and the Office of Enforcement in investigating hundreds of different facilities. The questions being asked were complex. What crosses the line separating "routine maintenance" or repair from a covered "physical change" in the facility? And gathering the necessary information was tricky: the very targets of the investigation were the only ones who possessed it. DOJ NSR Memo, *supra* note 170, at 13.

183. DOJ NSR Memo, *supra* note 170, at 14, after the enforcement cases were referred to the DOJ, the

> [DOJ's] Environment[ ] and Natural Resources Division . . . reviewed and evaluated the information provided by EPA, conducted legal research into the basis for the proposed allegations, consulted with EPA and independent experts regarding the proposed legal and factual allegations, and concluded that the referrals should be filed as enforcement actions.

184. A concerted campaign against EPA by the defendants in the suits contended that the Agency had committed the cardinal sin of administrative law: unevenly interpreting its own regulations thereby depriving the regulated community of "fair notice" of the regulations' meaning. *See* DOJ NSR Memo, *supra* note 170, at 25-33. The DOJ concluded that the charges were false. *Id*. at 33. ("[T]here is a reasonable basis for EPA's position that filing the existing enforcement actions was not an interpretive change that could be adopted only after engaging in notice-and-comment rulemaking.")

185. Out of the 2001 work of the National Energy Policy Development Group came a directive to the U.S. Attorney General to "review" the enforcement cases in order to "ensure that [they] are consistent with the [CAA] and its regulations." Report of the National Energy Policy Development Group 14 (2001). This political intervention into filed cases provoked an immediate reaction from various constituencies, perhaps most interestingly was that of STAPPA and ALAPCO. These organizations have been steady advocates of simplification throughout the NSR reform era. Settineri, *supra* note 125, at 147 (observing that STAPPA and ALAPCO "have a primary interest in reducing the administrative burden and achieving the goals of NSR"). They participated in EPA's reform dialogue for several years and had even advanced their own reform proposals. *Id*. at 146-50. In recent U.S. Senate testimony, they attacked the Administration for its efforts to undermine the enforcement cases. *See* Clearing the Air: An Oversight Hearing on the Administration's Clean Air Enforcement Program, Testimony of STAPPA-ALAPCO (Feb. 6, 2004), *available at* http://www.4cleanair.org/Testimony-NSR-SenateDemocratic.pdf (copy on file with author). More importantly, though, the group attacked EPA's proposed rulemakings billed by the Bush Administration as simplifying improvements to NSR. *Id*. *See infra* note 202 and accompanying text.

186. The Utility Air Resources Group (UARG), a lobbying and litigation entity created by the energy industry, orchestrated much of the "public input" to the Administration's so-called National Energy Policy Development Group. *See* http://www.nrdc.org/air/energy/taskforce/tfinx.asp (collecting documents from the National Energy Policy Development Group's meetings demonstrating UARG influence).

187. This may ultimately be the grounds upon which the disclosure controversy in Walker v. Cheney, 230 F. Supp. 2d 51 (D.D.C. 2002), and In re Richard B. Cheney, 334 F.3d 1096 (D.C. Cir. 2003), *cert. granted sub nom*. Cheney v. U.S. District Court (U.S. 2003) is resolved. Sen. James Jeffords (I-Vt.), one of the congressional requesters of the GAO audit at issue in Walker, alleged that the Bush Administration actively sought to undercut the NSR enforcement cases EPA and the DOJ had initiated in 1999. The policy changes to NSR have always been defended by the White House as not pertaining to the ongoing enforcement cases. The GAO also concluded that EPA staff had repeatedly implored the Agency's political leadership to reconsider aspects of the NSR reform rulemakings because of the impacts they would have on the enforcement cases. U.S. GAO, Re-

EPA's 2002 "NSR reform" rulemakings illustrate what the utility industry had argued the grandfathering within NSR ought to include.[188] Though billed as prospective in effect, one of the rulemakings substantially widened the routine maintenance, repair, and replacement exception to the modification definition.[189] The rulemakings are currently enjoined pending resolution of suits filed by environmental groups and 13 states, the District of Columbia, and dozens of cities and towns.[190]

Pollution control policymaking by the expert agency was supposed to resolve dilemmas like the old-new problem by linking law making directly to rational, professionalized study, i.e., learning when and how to best distribute the costs of retrofitting and regulating accordingly. Even technology-based programs, because they turn on complex data about the "feasible" for the individual source under its local economic and political circumstances, have bottlenecked and stalled. EPA has simply failed to extract the information needed to determine when a "modification" actually occurs, what constitutes the "best available control technology" or "lowest achievable emission rate" from each individual facility (or what would placate all the stakeholders involved).[191] The partisan politics of NSR reform illustrate a deep reality in regulatory policy and U.S. air pollution control. That reality is what may be called the "corporatism" of our modern presidency[192] and how it is steering the un-

port to Congressional Requesters, Clean Air Act: New Source Review Revisions Could Affect Utility Enforcement Cases and Public Access to Emissions Data 5 (2003) [hereinafter U.S. GAO, NSR Report].

While EPA's report, New Source Review: Report to the President (2002), makes no mention of the enforcement cases (but does include references to comments by and discussions with several of the defendants), a memo from then-Administrator Christie Whitman to Vice President Richard Cheney (dated May 4, 2001, and leaked to the press in summer 2003) noted that "the real issue for industry is the [NSR] enforcement cases. We will pay a terrible political price if we undercut or walk away from the enforcement cases; it will be hard to refute the charge that we are not enforcing the [CAA]." (copy on file with author).

188. The general rulemaking covered other scope issues besides the routine maintenance, repair, and replacement definition. *See* Notice of Final Rulemaking, 67 Fed. Reg. 80186 (2002). The finalized routine maintenance, repair, and replacement proposal was to include a blanket exception from the definition of "modification" allowing capital improvements to facilities of up to "20[%] of the replacement value of the process unit, at the time the equipment is replaced" without triggering NSR. *See* Notice of Final Rulemaking, 68 Fed. Reg. 61248, 61280 (2003). Several other exemptions were proposed in the general rule, but the overall purpose was to "allow owners or operators to replace components under a wider variety of circumstances than they have been able to do under our prior [routine maintenance, repair, and replacement] approach." *Id*. at 61251. This closely tracks what the fossil fuel utilities initially proposed. *See* U.S. GAO, NSR Report, *supra* note 187, at 18-19.

189. In the Preamble, EPA protested that the "new interpretation" was being adopted "prospectively" and without prejudice to the enforcement cases. 68 Fed. Reg. at 61273 & n.16. It also explained that neither the text nor the legislative intent of the NSR provisions in the Act required that "all major facilities eventually trigger NSR." *Id*. This is unmistakably the basis and purpose of EPA's "NSR reform" rulemakings. *See id*. ("[T]here is nothing in the legislative history of the 1977 Amendments . . . to suggest that Congress intended to force all then-existing sources to go through NSR."). And it directly undercuts the theory of "routine maintenance, repair, and replacement" behind the enforcement cases' allegations that certain actions constituted a "change" at a facility and not an exempted routine maintenance function. *Cf*. Jaber, *supra* note 180, at 30 ("Taken to its logical conclusion, the interpretation of NSR upon which the lawsuits are premised leads to the conclusion that every existing utility (indeed, virtually every industrial source in the country) should have become subject to NSR permitting every few years when additional maintenance projects were performed."). The rulemaking has been enjoined pending resolution of the challenge to its validity. *See supra* note 178.

The rulemaking was only one front of the larger war, though. A steady stream of leaks to the press belittling the law suits was another. *Cf*. Letter of Resignation from Eric V. Shaeffer, Director, Office of Regulatory Enforcement (Feb. 27, 2002) ("It is hard to know which is worse, the endless delay of the repeated leaks by energy industry lobbyists of draft rule changes that would undermine [the enforcement actions].") (copy on file with author). Overall, the vast expanse of the conflict has been great political theatre as each side accuses the other of hypocrisy, brinkmanship, and selfishness. The green lobbies that have defined themselves through their opposition to the utility industry have had a veritable field day with the Bush Administration's NSR "reform." *See, e.g*., Robert F. Kennedy Jr., *Crimes Against Nature*, Rolling Stone, Dec. 11, 2003 ("There is no better example of the corporate cronyism now hijacking American democracy than the White House's cozy relationship with the energy industry."). But the response to this has been equally galvanizing on the right and has sounded in accusations of demagoguery. *See, e.g*., Christopher Drew & Richard A. Oppel Jr., *How Industry Won the Battle of Pollution Control at EPA*, N.Y. Times, Mar. 6, 2004, at A5 (quoting Scott Segal, director of Electric Reliability Coordinating Council, as saying the Administration's approach to NSR is "cost-effective" and "effective"); National Association of Manufacturing, Press Release (Mar. 7, 2004), quoting Executive Vice President Michael Baroody:

> The sky-is-falling crowd wants to ignore the irrefutable fact that our air quality has continued to improve . . . . Sensible regulatory reforms, streamlined programs, and market-oriented incentives for improving energy efficiency, environmental performance and economic competitiveness are clearly preferable to 'gotcha' regimes that levy big fines but produce smaller environmental gains . . . .

190. *See* New York et al. v. EPA, No. 03-1380 and consolidated cases (D.C. Cir. 2003).

191. These two different technology standards, known as best available control technology (BACT) and lowest achievable emission rate (LAER), apply to clean air areas and nonattainment areas, respectively. *See* 42 U.S.C. §§7475(a)(4), 7501(3). In theory, BACT is less stringent than LAER. In practice, it is often unclear which is which. *See* Reitze, *supra* note 67, at 195-96. Another technology standard in the Act, the reasonably available control technology standard (RACT), required of all new and existing major sources located in certain nonattainment areas (irrespective of modifications) illustrates a coping strategy EPA has devised for the BAT information bottleneck. While RACT determinations are, strictly speaking, the province of the state regulators creating SIPs, *see* 42 U.S.C. §7502(c)(1), EPA has sought to institute certain "presumptive norms" of what RACT should be for individual sources by issuing what are called control technique guidelines (CTGs). These documents: (1) inform the state regulators of the technologies EPA considers reasonably available; and (2) hinge SIP approvals by EPA on adoption of controls at least as stringent as those in the CTG. *See* Reitze, *supra*, at 82:

> If a state uses the CTG to establish RACT, it can expect its SIP provisions applicable to a CTG source category to be approved without any difficulties. If a state chooses to impose a requirement on a source that is less stringent than the CTG, it has the burden of satisfying EPA that the RACT requirements have been met."

The CTGs, in other words, have reversed the circuits originally controlling the flow of information.

Such information burdens mushroom depending on how the notion "best available" is defined. *See, e.g*., National Lime Ass'n v. EPA, 627 F.2d 416, 10 ELR 20366 (D.C. Cir. 1980) (CAA §111's new source performance standards must be set with the assumption of "variability" at individual facilities and therefore the "best system of emission reduction which . . . the Administrator determines has been adequately demonstrated" means "demonstrated" with respect to individual facilities, not categories of such facilities nationwide).

192. By "corporatism" I mean an interpretation of our political institutions meant to be "representative" in the broadest sense as being firmly tied to organized interest groups rather than the organic mass of "the people" across the entirety of an electorate. *See infra* notes 208-20 and accompanying text.

wieldy vessel of pollution control policymaking.[193] The trend that has defined NSR illustrates much of what is wrong with the system as a whole.

3. What Went Wrong?

A framing assumption of the NSR regulations EPA first put in place one-quarter century ago was that the covered facilities themselves would make a conscientious determination of the program's applicability to their own source.[194] This assumption was fairly borne out where sources are "constructed," i.e., built from the ground up. It has been an utter failure where "modifications" are the issue.[195] While air regulators from far and wide must be involved when any new "major stationary source" is proposed,[196] things are much less transparent with respect to existing facilities.[197] The practical result is that life-extending modifications can be made without anyone on the outside knowing.

Perhaps most importantly, EPA never formally defined the activities which definitely qualify as "routine maintenance, repair, and replacement"[198] as opposed to triggering modifications.[199] In the face of massive uncertainties and legal complexity, EPA chose to employ a case-by-case method wherein "the regulated source itself determines whether an action qualifies as a routine activity, and therefore exempt from NSR."[200]

This "method" preordained the situation EPA found itself in by the mid-1990s. Confronted with the choice between an NSR permitting proceeding resulting in significant cost and delay (which may or may not affect competitiveness but which will certainly complicate one's immediate plans) and the risk of detection by an enforcement program as limited as EPA's, the "rational" choice was to do as your competition does and run the risk of detection.[201] Indeed, in the one enforcement case to result in a holding of liability thus far, the court took the opportunity to say what a failure this aspect of NSR truly represents.[202]

B. The Politics of the "Feasible"

Advocates of BAT regulation have often made claims about its capacity to engender "cooperation" and collaborative relationships among regulators and affected industry.[203] Existing "sources" and the political power they wield, though, seriously undermine advocacy of this sort, such as that found in *Chasing the Wind*. NSR is a perfect example. Even

193. *See infra* notes 222-23 and accompanying text.

194. The terminology is defined in the Act for two different programs (one for the "clean air areas" of the country and one for the "nonattainment areas"), which together constitute NSR as a whole. *See supra* note 191.

195. The first sign of trouble surrounding EPA's policy on "modifications" was a 1990 case against the Wisconsin Electric Power Company (WEPCO). The question arose in that case where to set the threshold. If the work involved major capital improvements to a coal-fired steam-generating unit, would that constitute a covered modification? In Wisconsin Elec. Power Co. v. Reilly, 893 F.2d 901, 20 ELR 20414 (7th Cir. 1990), the court held that WEPCO's own characterization of the work—that it constituted an "extensive renovation," *id*. at 905, and that it was in actuality a "life extension project," *id*. at 906—was good evidence that the work was "major." *Id.*

196. The NSR definition of "major stationary source" breaks down according to location. If it is to be built in an area currently meeting or exceeding the relevant NAAQS, the definition is usually limited to those sources that will emit or have the potential to emit at least 250 tons per year of a regulated pollutant, 40 C.F.R. §52.21(b)(2), or 100 tons per year if the source falls within any of seven listed categories. *Id*. §52.21(b)(1). If it is to be built in any nonattainment area, the thresholds are lower. *See id*. §51.165(a)(1)(iv) (100 tons per year for most air pollutants).

197. This is not to say EPA is powerless to inspect a source if it has a reasonable basis for that inspection, *cf*. 42 U.S.C. §7414(a)(2) (creating a "right of entry" for inspections), nor that it is without still further means should it have the will to undertake them. *See* Dow Chem. Co. v. United States, 476 U.S. 227, 16 ELR 20679 (1986) (aerial surveillance of facility upheld against Fourth Amendment challenge). According to 1998 data, though, there were almost 40,000 major stationary sources in the United States. Competing with those priorities for the scarce enforcement resources of the Agency were some 360,000 sources regulated under the mobile source program of Subtitle II, and over 33,000 dry cleaners regulated under the HAP program. Rietze, *supra* note 67, §18-2, at 520 (citing U.S. EPA, Enforcement and Compliance Assurance, FY 98 Accomplishments Report 10 (1999) (EPA 200-R-99-003)).

198. EPA's regulation exempting such routine repairs from coverage states only that "[m]aintenance, repair[,] and replacement which the Administrator determines to be routine for a source category" shall not trigger NSR. 40 C.F.R. §60.14(e)(1). There has never been any formalized definition of "routine," however, *see* United States v. Ohio Edison Co., 276 F. Supp. 3d 829, 850, 33 ELR 20253 (S.D. Ohio 2003), leaving it to the discretion of the Agency. This policy, the *Ohio Edison* court remarked, has been a "disastrous" approach. *Id*. at 833. The first case squarely to hold that something was not a routine maintenance, repair, or replacement, the *WEPCO* decision, involved an admission by the source itself that the modifications in question constituted an "extensive renovation" of the facility. *WEPCO*, 893 F.2d at 905.

199. Sources have strong incentives not to come forward for an NSR permit. "A number of stakeholders have asserted that the NSR permitting process is a significant barrier to investment and hindering competitiveness. Anecdotal evidence does indicate that the NSR permitting process can take a year or more." NAPA Report, *supra* note 163, at 30.

200. *Id.* at 20. That is to say, the source owner or operator must initiate contact and request an "applicability determination." *Id*. at 46 n.25.

201. The first judicial encounter with the NSR "modification" trigger arguably foresaw yet ignored the very breakdown in the system which we now see. In Alabama Power Co. v. Costle, 636 F.2d 323, 10 ELR 20001 (D.C. Cir. 1979), the court explained that "[t]he statutory scheme intends to 'grandfather' existing industries; but the provisions concerning modifications indicate that this is not to constitute a perpetual immunity from all standards under the PSD program. If these plants increase pollution, they will generally need a permit." *Id*. at 400. Of course that frames the issue without mentioning the enormous incentive to avoid "modifying" a grandfathered facility. When EPA finally went looking for such behavior it was, according to the agency, everywhere to be found. DOJ NSR Memo, *supra* note 170, at 13.

202. *See Ohio Edison Co.*, 276 F. Supp. 2d at 829. Another case has resulted in a denial of summary judgment on the defendant's claim that EPA's theory of "modifications" was wrong as a matter of law. *See* United States v. Southern Ind. Gas & Elec. Co., 245 F. Supp. 2d 994 (S.D. Ind. 2003). Finally, one case has resulted in a partial summary judgment for the defendant holding that the legal definition of "routine" must be construed according to what is in fact routine in the industrial sector from which the facility comes. *See* United States v. Duke Energy Corp., 278 F. Supp. 2d 619 (M.D.N.C. 2003). Intriguingly, STAPPA/ALAPCO have intensified their opposition to any easing of the NSR requirements. *See* STAPPA & ALAPCO, New Source Review Menu of Options P-1 (2003), *available at* http://www.4cleanair.org/ModelRulePreamble.pdf:

> EPA's recent actions dramatically narrow the applicability of these key clean air requirements, allowing facilities far greater leeway to install or modify equipment without applying modern pollution controls or assessing air quality impacts . . . . Many state and local air pollution control agencies believe the new rules will seriously diminish air quality protections and undermine the achievement and maintenance of our nation's clean air and public health goals.

203. *See, e.g.*, Chasing the Wind, *supra* note 1, at 183-88. Only by jettisoning hollow hopes of environmental quality achievements, they insist, can we focus on the real-time pollution reductions actually feasible in the here and now. Add these increments up across the entire bandwidth of regulated pollutants (and the environmental "media" to which they are discharged), the argument finishes, and a cooperative, feasibility-based approach is superior to the one we have now. *See generally id.*; Latin, *Ideal Versus Real*, *supra* note 107.

in the cases where sources did disclose a "modification" and did undertake the daunting process of NSR (a small minority, it seems),[204] the results were mixed from the perspective of pollution prevention.[205]

It is an unfortunate reality that BAT regulation depends upon sustenance wholly controlled by the sources of pollution themselves. That sustenance is *information*: information about available technologies, cost structures, and the practical consequences of regulatory mandates to install or operate a particular form of pollution control.[206] So long as this is true—as long as some well-formed corporate entity possesses the very tools the government needs to exert its regulatory leverage (or, conversely, the very impetus, "public opinion," behind government regulation in the first place)—the agenda in pollution control will be shaped in an increasingly "corporatized" regulatory process.[207] The corporatist state, that is, will continue succeeding the administrative state.

C. Our Once and Future Corporatist State

> *[I]t is probable that upon reflection they will, in spite of the annoyance which they suffer, still conclude that, after all, one's bread is more important than landscape or clear skies*.[208]

Administrative law scholars generally agree that we are in an era of "Presidential Administration,"[209] that our administrative state is slowly becoming dominated by the presidency to an extent not seen in many decades.[210] The president's control of the administrative state is, it certainly seems, as strong as it has ever been.[211] Now a consistent theme of the Bush Administration has been a felt sympathy for American corporations and a desire to bolster their competitiveness globally.[212] The corporate interests that the Republican party serves are unapologetically benefitted by the statutes and regulations the Administration champions.[213] Yet the Democratic party has its corporate sponsors, too.[214]

204. NAPA Report, *supra* note 163, at 86-87 & tbl. 5-3, 93-94, 110 ("NSR's ineffectiveness in reducing emissions as Congress intended is best illustrated by the continuing high levels of air pollution from older electric utilities. In this sector, many older coal-fired power plants emit far greater amounts of air pollution per unit of electricity produced than do more modern plants.").

205. *Id*. at 112-19; *see also id*. at 113 (finding that NSR's record in "driving incremental technological change is mixed").

206. In an exhaustive study of the regulatory effects of the TRI, Karkkainen concluded that TRI's effectiveness—its capacity to drive reductions in toxic emissions—is owed at least in part to the fact that it does "not require the regulator to make complex and highly uncertain judgments about the technological feasibility or compliance costs associated with emissions reductions. . . ." Karkkainen, *supra* note 91, at 292. TRI has in this connection debottlenecked the regulatory process by internalizing it within the firm, leaving the corporation's own managers in charge of engineering the best solutions to their emissions. *Id*. at 294-309.

207. Neo-populist critiques of both sides of this power struggle emphasize how exclusionary its high stakes and technical vocabularies have made it. *See* Fischer, *supra* note 93, at 170-218 (describing environmental activism based upon local knowledge and community self-policing and contrasting it with scientific regulations of risk and BAT). So-called lay risk assessments, i.e., not in my backyard, put less reliance on formal rationality than on "past social experiences" telling "citizens whom they can trust and whom they can't." *Id*. at 138.

208. Versailles Borough v. McKeesport Coal & Coke Co., 83 Pittsburgh L.J. 1935 (Pa. 1935) (quoting Chasing the Wind, *supra* note 1, at 95).

209. *See* Elena Kagan, *Presidential Administration*, 114 Harv. L. Rev. 2245, 2298-99 (2001):

> Even absent any assertion of directive authority, a President has many resources at hand to influence the scope and content of administrative action. . . . President [Ronald] Reagan . . . successfully relied on these points of leverage to induce reconsideration of some agency decisions, another President might be able to employ these devices to impel the initiation of administrative action.

210. *Id*. at 2281-82:

> President [William J.] Clinton treated the sphere of regulation as his own, and in doing so made it his own, in a way no other modern President had done . . . . He accordingly developed a set of practices that enhanced his ability to influence or even dictate the content of administrative initiatives. He exercised his power with respect to a wide variety of agency action—rulemakings, more informal means of policymaking, and even certain enforcement activities . . . .
>
> Furthermore, recent Court jurisprudence has displayed a confidence in presidential control of administrative agencies like EPA, setting in motion what to some seems like a veritable revolution in administrative law. *See, e.g*., Cynthia R. Farina, *Undoing the New Deal Through the New Presidentialism*, 22 Harv. J.L. & Pub. Pol'y 227 (1997). It would carry with equal force, I would submit, in a field of regulation like air pollution control. While these trends are still unfolding and their results uncertain, they promise to be both broad and deep.

211. Kagan, *supra* note 209, at 2280. As an empirical claim, that would be hard to validate even though anecdotally it seems correct. As a predictive claim, though, I imagine it ignores a certain historical fact about the administrative state. Congress' reluctance to create it in the first place was eventually overcome, at least in part, because its members could still exert influence over how the agencies administered their broad delegations of power. *See* Jerry L. Mashaw, Greed, Chaos, and Governance: Using Public Choice to Improve Public Law (1997); Peter L. Strauss, *The Place of Agencies in Government: Separation of Powers and Fourth Branch*, 84 Colum. L. Rev. 573 (1984). Moreover, the Court has routinely recognized that administrative agencies exercise powers that at least resemble all three branches' authorities. *See, e.g*., Buckley v. Valeo, 424 U.S. 1, 140-41 (1976). The president did not exercise hegemonic supervisory authority over any of the regulatory agencies created and, therefore, Congress, the president, and the courts could share power over the agencies.

212. For example, the U.S. Department of Commerce (DOC) recently released a report outlining what it called a "comprehensive strategy" to "enhance U.S. economic growth and manufacturing competitiveness." U.S. DOC, Manufacturing in America: A Comprehensive Strategy to Address the Challenges to U.S. Manufacturers 59 (2004) [hereinafter Manufacturing in America]. One of its core recommendations was the enactment of the Bush Administration's energy bill, although what enhancements of manufacturing competitiveness the bill would ensure was left wholly unspecified. *Cf. id*. at 66 ("Congress should pass President Bush's energy plan to reduce the cost of energy to U.S. manufacturers."). The cost and availability of energy have traditionally been two major advantages enjoyed by U.S. manufacturers, although even the DOC's own arguments fail to show any urgency for what is proposed in the energy bill. *Compare* Manufacturing in America, *supra*, at 44 ("The effects of the blackouts in California several years ago illustrate . . . . [M]ore than half the firms surveyed . . . were forced to reduce or shut down business operations altogether during the blackouts.") *with* U.S. GAO, Restructured Electricity Markets: California's Market Design Enabled Exercise of Market Power (2002) (GAO 02-828) (California blackouts had nothing to do with absolute shortages).

213. *See generally* Kennedy, *supra* note 189. The Natural Resources Defense Council (NRDC) has been particularly venomous (and effective) in its attacks from this angle. *See, e.g*., NRDC, The Bush-Cheney Energy Plan, *available at* http://www.nrdc.org/air/energy/aplayers.asp ("The Bush-Cheney energy plan . . . is the culmination of a process that hinged on cozy business connections, secret deals[,] and industry campaign contributions.").

214. The criticisms levied by the Democratic presidential hopeful ring somewhat hollow when his own corporatist strategies for election are spotlighted. *See, e.g*., John Solomon, *Kerry Fought for Insurer That Donated to Him*, Wash. Times, Feb. 6, 2004 ("Sen. John Kerry intervened to keep open a loophole that had let a major insurer [AIG]

It may seem a little grandiose to say, but one inference to be taken from evidence like that marshalled in *Chasing the Wind*—especially when combined with the portrait of a program like NSR here—is that a different kind of state is being synthesized. The corporatist, stakeholder state better reflects the changing nature of our representative institutions suffused as they have been for so long in a jargon of expert, bureaucratic regulation.

Concentrated stakes like those bound up in NSR are powerful incentives to rig the very discourse of policymaking surrounding our air pollution control laws. Because these stakes have become so defined by and interconnected with each other, disentangling them in pursuit of some "public interest" seems too difficult a task (even for a bureaucratic behemoth like EPA). Thus, policy debates so thoroughly intertwine public officials with various "private" concerns that the lines separating the two seem almost meaningless.[215] This is even truer where public officials must bargain for the information that will enable them to regulate rationally. Thus, in "corporatism" we might think of a successor to the modern liberal-democratic (or administrative) state which has become "focused on the centralized power of organized interest groups, and the attempts by the state to overcome the problems they generate by an *inventive* strategy of *political integration*."[216] I would suggest that such a strategy of political integration is endemic to our presidential elections today and that how presidents are elected is having profound effects on the making of air pollution control policy.[217]

In one sense, this is a rather simplistic corollary to the old logic of collective action wherein intensely interested, organized minorities dominate uninterested majorities and thereby set the political agenda.[218] And, indeed, the first critics of the administrative state contrasted its "collectivism" to the supposedly more "libertarian" common-law state.[219] But the more interesting point to be gleaned is that, in the face of complexity beyond comprehension, it is the stakeholders themselves whom the public has come to distrust—whom it wants "controlled"—and the stakeholders themselves know it.

The examples considered here illustrate. NSR exemplifies a core group of industrial "clients" who draw their harshest political criticisms not for their environmental performance per se,[220] but rather when the policy choices of the president benefit them.[221] While the current Administration seeks to "rationalize" NSR as a program, its political opponents emphasize how its motives are really the elevation of the almighty buck over the lives of at-risk Americans.[222]

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divert millions of federal dollars from the nation's most expensive construction project, then received tens of thousands of dollars from the company in the next two years . . . ."). Kerry, speaking in Litchfield before the New Hampshire primary, boasted that he was "running for President because, at every turn, George Bush has favored tax cuts for the wealthy and breaks for the special interests over the protection of [the Merrimack] river and other rivers and streams all across America." Patrick Healey, *Kerry Says Corporations Sway Environmental Rules*, Boston Globe, Nov. 13, 2003. Federal Election Commission records show that Kerry's significant donations come from the exact same corporations supporting Bush. *See* Top Donors to Kerry and Their Contributions to Bush (Mar. 3, 2004), *at* http://www.opensecrets.org/pressreleases/2004/BushKerryContribs.asp (copy on file with author).

215. The so-called Gilded Age following Reconstruction (but predating the emergence of the administrative state) is a tempting analogy. *See generally* Robert H. Wiebe, The Search for Order, 1877-1920 (1967); Stephen Skowronek, Building a New American State: The Expansion of New Administrative Capacities, 1877-1920 (1980). *See also* Martin J. Sklar, The Corporate Reconstruction of American Capitalism, 1890-1916: The Market, the Law, and Politics (1988); Sven Beckert, The Monied Metropolis: New York City and the Consolidation of the American Bourgeoisie, 1850-1896 (2001) (describing the inordinate influence of the "capitalist class" during the period). But perhaps New Deal labor politics is the better analogy. *See* Cushman, *supra* note 31, at 119-30 (referring to an "associationalism" underlying certain New Deal legislation protecting labor rights).

It might be argued that BAT regulation further induces the intertwining of state and corporate stakes given the scale and richness of the information exchange upon which it relies. *See supra* notes 182-202 and accompanying text; *cf.* Chasing the Wind, *supra* note 1, at 189:

> Developing the collective vision and the degree of trust necessary to sustain precautionary regulatory regimes cannot happen by decree or take place overnight. "Have the other side go first," would be the likeliest response of both industrial and environmental interest groups if asked to yield on the absolutist promises of the common law state.

216. David Held, Models of Democracy 227 (2d ed. 1996) (emphasis in original).

217. Corporatism has been described as the successor to the pluralist state and been defined as

> a system of interest representation in which the constituent units are organized into a limited number of singular, compulsory, hierarchically ordered and functionally differentiated categories, recognized or licensed (if not created) by the state and granted a deliberate, representational monopoly within the respective categories in exchange for observing certain controls on their selection of leaders and articulation of demands and supports.

Id. at 227 (quoting P.C. Schmitter, *Still the Century of Corporatism?*, 36 Rev. Pol. Studs. 93-94 (1974)). One may wonder how well this describes the average agency rulemaking, agency enforcement action, or government press release. *See* Peter H. Schuck, *Public Interest Groups and the Policy Process*, 37 Pub. Admin. Rev. 132 (1977). But as "[p]olitical participation becomes the reserve of organizational elites," and the liberty of civic engagement becomes less and less a feature of the agency model, the theorists of the pluralist tendencies of our administrative state more and more become its most vocal critics. *See* Held, *supra* note 216, at 228. *Cf.* Robert Dahl & Charles Lindblom, Politics, Economics, and Welfare xxxvi (1976), arguing that corporatized interests

> play a distinctive role in polyarchal politics that is . . . much more powerful than an interest group role . . . . [C]ommon interpretations that depict the American or any other market-oriented system as a competition among interest groups are seriously in error for their failure to take account of the distinctive privileged position of businessmen in politics.

218. Thus, collective action through legislative bodies became a question of a requisite number each of whom holds a stake sufficiently concentrated to motivate their actions even though others may benefit as much or more than they. *See* Mancur Olson, The Logic of Collective Action: Public Goods and the Theory of Groups (1965); David B. Truman, The Governmental Process (1958); V.O. Key, Politics, Parties, and Pressure Groups (4th ed. 1958).

219. *See, e.g.*, Friedrich A. Hayek, The Road to Serfdom 63 (Chicago 1994) (1944) ("The common features of all collectivist systems may be described . . . as the deliberate organization of the labors of society for a definite social goal.").

220. One of the constant talking points of the energy lobby throughout the NSR debacle has been the overall improvement in its environmental performance over the last two decades. *See* Edison Electric Institute, New Source Review: A History (2001) (projecting that by 2010 "[n]ational SO_2 emission[s] are projected to be at their lowest level in 100 years (except for a few years during the Great Depression), largely due to utility reductions") (copy on file with author).

221. *See supra* note 213 and accompanying text.

222. *See, e.g.*, Sunstein, *supra* note 18, at 153-59 (describing the politics

Politically, of course, the public finds such self-dealing repulsive and may well take its retribution. But the setting of the NAAQS for lead is an equally poignant example. The more the expert agency learned about lead, the richer its questions grew and the more uncertain it became. Satiating the information demands of a rational, "scientific" approach to ambient environmental regulation became virtually impossible. Only by a margin of deference was EPA's chosen standard finally upheld. Change the doctrines of deference—and the consequent allocations of authority over the agencies—and that outcome can be reversed,[223] especially with repeat-players like Congress and EPA which have proven so pragmatic and adaptive over time.

IV. "The Instability of American Life": A Proposal for Future Research

America's common-law system was replaced with one meant to harness the deliberative powers of bureaucratically unified, politically insulated establishments, directing their powers of rationality to pursuit of the common good. The amalgamated "administrative state" of agencies and courts was the result and air pollution control policy has been but one among a litany of the public's objectives. *Chasing the Wind*, though, ultimately ignores its biggest failures.

Both the technology-based and risk-based aspects of the Act have frustrated Congress, EPA, and the states in the details of actual implementation.[224] Unfortunately, we are still trying to imagine something other than the administrative agency to solve the public problem framed by the CAA. In 1864, George Perkins Marsh lamented what he called the "instability of American life." He hoped that it was "time for some abatement in the restless love of change which characterizes us, and makes us almost a nomade [sic] rather than a sedentary people."[225] Seven generations later—where the defining environmental problems in America are the consumption of space and fossil fuels—Marsh's concerns seem more current than ever. We might wonder whether *any* governance structure, any version of our state, could solve the dilemmas of our lifestyle.[226]

The long-term implications for "public" objectives like pollution control in this slow transformation of the administrative state remain unclear.[227] Perhaps the most discouraging observation about the field is that the whole technology-forcing vision Sen. Edmund Muskie (D-Me.) and others so publicly championed in the 1970s has, in practice, degenerated and become so dysfunctional as to undermine the very premises of "cooperative" regulation in the "public interest."[228] So is it fair to characterize scholarship about pollution control as mere advocacy for one "corporatized" interest or another? Perhaps not. Yet, to a noticeable degree researchers in the legal and public policy academies today tend to the micropolitical problems faced by the interest groups with which they identify. *Chasing the Wind*, in its defense, does not do that. It tugs at a lose thread wound through modern American air pollution control policy as a whole: the rational bureaucratic state itself. It is a thread that, if pulled with the right force and at the right juncture could one day unravel the larger tapestry of complex national policymaking as we have envisioned it. That version of the state was created for the purpose of supplanting the common-law method of governance, a method that reached its nadir in the setting of air pollution policy by injunction. The best question for future research in this field is whether the cure has been worse than that disease.

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of arsenic in the Clinton and Bush Administrations and a cost-benefit analysis suggesting that controlling arsenic in drinking water would be extraordinarily costly relative to the health benefits to be achieved).

223. *See generally* David J. Barron & Elena Kagan, Chevron's *Nondelegation Doctrine*, 2001 Sup. Ct. Rev. 201; Cynthia Farina, *Statutory Interpretation and the Balance of Power in the Administrative State*, 89 Colum. L. Rev. 452 (1989); *see also supra* notes 130-35 and accompanying text. Instead of creating a threshold for lead out of thin air, EPA simply adopted conclusions from someone (the CDC) the public would trust. Indeed, in *Lead Industries* the alleged bias of an official who had taken a turn through the revolving door separating EPA and a powerful environmental lobby became a threat to the integrity of the whole process. The court ultimately turned this challenge back, *see* Lead Indus. Ass'n v. EPA, 647 F.2d 1130, 1172-80, 10 ELR 20643 (D.C. Cir. 1980), but, as Melnick detailed, the lead defendants' theory for why EPA set the standard it did was almost entirely predicated on the fact that industry had been ignored while David Hawkins (the representative of another concentrated, corporatized entity) had played a big role in the rulemaking. Innuendo and allegations of impropriety, that is, carried their whole argument. Melnick, *supra* note 43, at 271.

224. Perhaps a better question, thus, is whether any mix of these two philosophies would have been a better fit to the rational bureaucratic model of EPA wherein states and localities, corporate stakeholders, and consumers are so powerful (and possess so much of the necessary information). *Cf.* Oren, *supra* note 160, at 160-74 (describing the sharp rise in vehicle miles traveled in the United States as a result of "sprawl" and the coincident failure of car fleets to improve performance in step with the Act's demands); *id*. at 150-51:

> Automobiles are pervasive in this country, with about 200,000,000 vehicles operating over nearly 4,000,000 miles of public roadway. Americans drive their cars about one hour per day. Emissions from these vehicles pose a serious threat to achievement of the Act's goals. The nation's automobile fleet is a significant source of carbon monoxide, hydrocarbons (also known as volatile organic chemicals, or VOCs) and nitrogen oxides—all pollutants regulated under the Act.

225. George Perkins Marsh, Man and Nature 279-80 (David Lowenthal ed., 1965) (1864). Marsh's specific subject in the passage quoted was the consumption of forests as a consequence of logging, farming, and ranching.

> We have now felled forest enough everywhere, in many districts far too much. Let us restore this one element of material life to its normal proportions, and devise means for maintaining the permanence of its relations to the fields, the meadows, and the pastures, to the rain and dews of heaven, to the spring and the rivulets with which it waters the earth.

Id. at 280.

226. The only comment I would offer on the American lifestyle would echo Marsh—transience:

> It is rare that a middle-aged American dies in the house where he was born, or an old man even in that house which he has built; and this is scarcely less true of the rural districts . . . than of the cities . . . . This life of incessant flitting is unfavorable for the execution of permanent improvements of every sort, and especially of those which, like the forest, are slow in repaying any part of the capital expended in them.

Id. at 280 n.250.

227. *But see* Sidney A. Shapiro, *Political Oversight and the Deterioration of Regulatory Policy*, 46 Admin. L. Rev. 1, 1 (1994) ("If political oversight is a good thing, then it is possible to have too much of a good thing."); David E. Lewis, Presidents and the Politics of Agency Design: Political Insulation in the United States Government Bureaucracy, 1946-1997, at 159-67 (2003) (predicting the "mortality" of agencies not insulated from presidential control).

228. *See* Reitze, *supra* note 66, at 702-12.