the significance of the story would be clear if the subject were bridges, but since it's pencils we need these reminders that we are not simply learning trivia.

Therein lies the paradox of *The Pencil*. On the one hand, Petroski has sought to rescue a tool whose very ubiquity and ordinariness make it almost invisible in the technological landscape. On the other, he will not let us accept the story of the pencil on its own terms. Perhaps even he cannot believe that such a small and simple thing can justify an entire book. His doubts are infectious, and though his readers will look at their pencils differently, they may not be quite certain it was worth the effort.

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Policy Shortfalls

The Environmental Protection Agency. Asking the Wrong Questions. MARC K. LANDY, MARC J. ROBERTS, and STEPHEN R. THOMAS. Oxford University Press, New York, 1990. xvi, 309 pp. $29.95.

Twenty years after its creation, the Environmental Protection Agency (EPA), the protagonist of this book, stands on the verge of being elevated to a cabinet department. It is an opportune moment to take stock of the agency's achievements and failures. The environmental problems of the next two decades promise to test our scientific and political ingenuity even more than those we have experienced to date. What lessons from the past should the nation's environmental policy-makers bear in mind as they struggle to fashion solutions for the future?

The historical record compiled by the authors, all highly respected policy analysts, does not look encouraging. It is a story of missed opportunities to illuminate complexity, to designate reasonable priorities, to rise above self-interest, and to educate citizens about the costs, risks, and benefits of alternative approaches to environmental protection. These themes are elaborated in a sequence of five case studies covering some of EPA's most controversial regulatory undertakings: revising the air quality standard for ozone, writing the Resource Conservation and Recovery Act (RCRA) regulations, passing Superfund, forging a "cancer policy," and enforcing the Clean Air Act against the steel industry. Upon this "small canvas" framed by one agency's experiences, the authors set out to paint a most ambitious picture, not merely of failures in U.S. environmental policy, but of much that ails government in America today.

One of the book's most impressive features is the extraordinarily detailed rendition of the five cases. The authors have spoken personally, often obviously at length, with most of the principal actors who dealt with environmental policy in the Carter and Reagan years. Though EPA administrators figure most prominently in their account, a multitude of congressmen, staffers, industry representatives, and environmental advocates also play important parts in these briskly written stories. One has the sense of real battles fought out among real people. It is a flesh-and-blood world, where human stakes and motivations matter.

All this is perfectly consistent with pluralist politics as we know it, but the book presents a spirited argument against pluralism as a way of governing, at least in the context of environmental policy. The pluralist preference for "muddling through" is denounced as a front for rampant self-seeking, a mode of problem-solving that downgrades values, advances parochial agendas, and ignores the substantive merits of different possible outcomes. The authors are committed instead to an altogether more active and idealistic model of government, one that promotes civic education, responds strategically to public needs, and is attentive to the technical feasibility and effectiveness of proposed policies.

That EPA fails to measure up to these high expectations is hardly surprising, though some may find the extent of the shortfall remarkable. Beset by internal squabbles and obsessed with short-term concerns, the authors argue, EPA repeatedly overlooked possibilities for developing deliberative and integrative policies. Oversimplification substituted for analysis in virtually all of the cases—for example, when EPA chose to treat ambiguous and ill-defined concepts like "safety," "carcinogenicity," or "most sensitive populations" as if they were amenable to purely scientific resolution. The result was a focus on the wrong questions, so that policy inevitably was directed toward unachievable or indefensible ends.

How could the agency have done better? As the subtitle implies, the authors are particularly concerned about actions and attitudes that hindered the formulation of productive questions. The case studies identify numerous moments when individual decision-makers could have acted differently in order to promote deliberation over ideology and civic virtue over narrow programmatic interests. These examples give the book a strongly prescriptive flavor, for the authors do not hesitate to dole out praise and blame. We learn, for instance, that David Hawkins and William Drayton, two forceful Carter appointees, might have agreed earlier on a cost-effective "bubble policy" if they had not imported into the bubble debate their contrary views of how much cleanup should be required of the beleaguered steel industry. Anne Gorsuch, Reagan's first EPA administrator, could and should have done more to protect EPA's internal bureaucracy and to placate the agency's external constituencies. By contrast, her successors William Ruckelshaus and Lee Thomas win commendation for their efforts to strengthen EPA's risk-analysis capabilities and to educate the public about uncertainty.

Though it is easy to admire, and for the most part to agree with, the authors' normative instincts, a difficulty arises when one asks how EPA or any federal agency might begin to live up to the standards set in this book. The problem that confronts us, after all, is not merely "what are the right questions about environmental protection?" but "how can we get policy-makers, in a sustained way, to ask and answer better questions?" Yet it is the first part of the problem that dominates the book; the second, more structural issue is raised only in the final five pages, where it gets predictably short shrift.

There are two reasons for this imbalance. First, the case study approach almost by definition emphasizes the individual and particularistic features of a situation, making it difficult to draw systemic conclusions. Indeed, one of the paradoxes of the book is that it purports to speak of EPA as a single actor while brilliantly demonstrating that "EPA" is at best a notional entity, a cluster of conflicting mandates, programs, and personalities that cannot easily be united under a common purpose. The uniformly negative cast of the five cases also hinders generalization. One or two equally compelling success stories would have helped establish that it is possible, without revolutionary transformations, to induce individual decision-makers or whole programs to behave in ways that the authors value.

It is all too easy, finally, to pillory a regulatory agency for failing to take the long view and succumbing to immediate political pressure. In rightly stressing the virtues of critical thinking and policy integration, academic policy analysts should not lose sight of the government's need to act. The Iranian hostage crisis was a recent and powerful reminder that stasis born of too much delib-

eration can be just as demoralizing to a democratic polity as hasty and ill-considered action. For EPA or its successor agency, the real challenge of the coming decades will be to find the right balance between action and deliberation. The choices may well be more difficult than this book lets on, for environmental policy will continue to be made against a backdrop of sharply conflicting expectations. Let us not forget that Ruckelshaus's efforts to educate the citizens of Tacoma, Washington, about risk, an initiative the authors unqualifiedly applaud, was greeted on the editorial pages of the *New York Times* as the unbridled act of a Roman Caesar.

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A Move for Protection

Pure Food. Securing the Federal Food and Drugs Act of 1906. JAMES HARVEY YOUNG. Princeton University Press, Princeton, NJ, 1989. xiv, 312 pp. $29.95.

Given the controversies that continue to be generated by issues of food and drug quality, it is of interest to know how previous generations have dealt with such challenges. In *Pure Food: Securing the Federal Food and Drugs Act of 1906* James Harvey Young has interwoven themes from political history, the history of science, technology, and medicine, and economic history into a coherent account of the emergence of concrete and enforceable legislation aimed at protecting the public from "impure" food and drugs. Beginning with the passage of an 1848 law aimed at banning adulterated drugs imported into the United States and ending with the 1906 Food and Drugs Act and Meat Inspection Amendment, the book centers on a period during which America experienced sustained industrialization, urbanization, and professionalization. Scientific knowledge and expertise emerged as an important factor during this time, offering not only new solutions for societal problems, but also new problems, as in cases of food and drug adulterations that were most difficult to detect. Furthermore, the development of science-based technology after the Civil War led to new "synthetic" food products like glucose and oleomargarine, ultimately pitting farmer against manufacturer in the political arena. And as mass production and canning began to dominate the food industry, national, rather than regional or local, markets crystallized, setting the stage for federal government intervention and regulation.

Poster for the movie version of Upton Sinclair's *The Jungle*, "featuring Sinclair's castigation of the packers for their chemical manipulation of meat products." [From *Pure Food*; courtesy of Lilly Library, Indiana University, Bloomington]

"Harvey W. Wiley, chief chemist of the Department of Agriculture, dining at the 'hygienic table' with members of the 'Poison Squad' during his experiments testing food preservatives for safety." [From *Pure Food*; courtesy of the Food and Drug Administration]

The interplay of activists, popular writers, scientists, businessmen, and politicians in responding to these developments is at the heart of Young's story. While scientific works like Lewis Caleb Beck's *Adulteration of Various Substances Used in Medicine and the Arts* and Fredrick Accum's *A Treatise in Adulterations of Food* played a role, it was the vast amount of popular literature related to the problem, including articles written in the 1858 *Leslie's Illustrated Newspaper*, turn-of-the-century muckraker essays in *World's*