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"Clean New World": Toward an Intellectual History of American Environmental Law, 1961-1990

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"CLEAN NEW WORLD": TOWARD AN INTELLECTUAL HISTORY OF AMERICAN ENVIRONMENTAL LAW, 1961-1990

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I. INTRODUCTION

I am greatly honored by your attendance at my Inaugural Lecture. Mindful of John Dryden's warning about those "who think too little and who talk too much"[1] and cognizant of Ben Johnson's observation that "talking and eloquence are not the same.... A fool may talk, but a wise man speaks,"[2] I shall try to speak much but talk little.

Indeed, my lecture today will reveal that my thoughts on the intellectual history of modern American environmental law are incomplete and still evolving. As the title of my lecture implies, I present you with a work-in-progress -- with an impressionistic painting only partially shaded; with a bas

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1. J. DRYDEN, ABSALOM AND ACHITOPHEL (1680), *quoted in* J. BARTLETT, FAMILIAR QUOTATIONS 304 (15th ed. 1980).

2. B. JOHNSON, TIMBER; OR DISCOVERIES MADE UPON MEN AND MATTER (1640), *quoted in* J. BARTLETT, FAMILIAR QUOTATIONS 257 (15th ed. 1980).

relief still rough around the edges. Today's lecture represents the cornerstone for a long-term project that will, I hope, lead to further articles and, possibly, a book on the subject a few years from now.

Two main questions that I would like to consider with you can be stated as follows: First, will our knowledge of the dynamics of political give and take between opposing interest groups -- both organized and disorganized, either now or in the future -- suffice to explain all aspects of contemporary American environmental law? On the supposition that the answer to the initial question is in the negative, the second question is: What role have diverse and eclectic intellectual ideas from scholars, writers, and government officials had in the evolution of American environmental law during the past three decades? You will observe at once, I am sure, that the answer to the second question -- in light of a presumed negative answer to the first question -- depends on two crucial details: (1) the quality and quantity of the record of intellectual writings about environmental issues during the sixties, seventies, and eighties; and (2) whether, and to what extent, lawyers and legal decisionmakers in legislatures, courts, and administrative agencies have relied directly or indirectly upon this diverse body of writing.

To probe and ponder the answers to these two overarching questions and related points, I propose to proceed as follows. Initially, I will consider the nature of the staggering complexity in the structure, process and content of modern American environmental law.[3] Second, I shall briefly explain and survey existing historical literature about "things environmental": from ecological histories to histories of environmental ethics to environmental political histories to futuristic writings about the environment based on historical trends.[4] Third, the lecture will explain the difference of my proposed focus on the *intellectual* history[5] of modern American environmental law in comparison to

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3. *See infra* notes 12-41 and accompanying text.

4. *See infra* notes 42-80 and accompanying text.

5. Intellectual history is predominantly the history of ideas and the intellectuals who profered those ideas. For general world intellectual histories, see generally F. BAUMER, MAIN CURRENTS OF WESTERN THOUGHT: READINGS IN WESTERN EUROPEAN INTELLECTUAL HISTORY FROM THE MIDDLE AGES TO THE PRESENT (rev. 2d ed. 1964); F. BAUMER, MODERN EUROPEAN THOUGHT: CONTINUITY AND CHANGE IN IDEAS, 1600-1950 (1977); J. BRONOSKI & B. MAZLISH, THE WESTERN INTELLECTUAL TRADITION: FROM LEONARDO TO HEGEL (1960); A. BULLOCK, THE HUMANIST TRADITION IN THE WEST (1985); F.E. & F.P. MANUEL, UTOPIAN THOUGHT IN THE WESTERN WORLD (1979); MODERN EUROPEAN INTELLECTUAL HISTORY: REAPPRAISALS AND NEW PERSPECTIVES (D. La Capra & S. Kaplan eds. 1982); R. NISBET, HISTORY OF THE IDEA OF PROGRESS (1980); B. SCHWARTZ, THE WORLD OF THOUGHT IN ANCIENT CHINA (1985); R. STROMBERG, AFTER EVERYTHING: WESTERN INTELLECTUAL HISTORY SINCE 1945 (1975); R. STROMBERG, EUROPEAN INTELLECTUAL HISTORY SINCE 1789 (4th ed. 1986).

For American intellectual histories, see generally THE AMERICAN INTELLECTUAL TRADITION (C. Capper & D. Hollinger eds. 1989); T. BENDER, NEW YORK INTELLECTUAL: A HISTORY OF

existing environmental histories and legal analyses, while placing the proposed study of the intellectual history of American environmental law within the larger tradition of the sociological school of jurisprudence.[6] Finally, I will sketch a

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INTELLECTUAL LIFE IN NEW YORK CITY FROM 1750 TO THE BEGINNINGS OF OUR TIME (1988); S. BERCOVITCH, THE AMERICAN JEREMIAD (1978); N. BIRNBAUM, THE RADICAL RENEWAL: THE POLITICS OF IDEAS IN MODERN AMERICA (1988); A. BLOOM, PRODIGAL SONS: THE NEW YORK INTELLECTUALS AND THEIR WORLD (1986); D. BOORSTIN, THE LOST WORLD OF THOMAS JEFFERSON (1948); P. BOYER, BY THE BOMB'S EARLY LIGHT: AMERICAN THOUGHT AND CULTURE AT THE DAWN OF THE ATOMIC AGE (1985); H. COMMAGER, THE AMERICAN MIND: AN INTERPRETATION OF AMERICAN THOUGHT AND CHARACTER SINCE THE 1880S (1950); J. DIGGINS, THE LOST SOUL OF AMERICAN POLITICS: VIRTUE, SELF-INTEREST, AND THE FOUNDATIONS OF LIBERALISM (1984); R. HOFSTADTER, ANTI-INTELLECTUALISM IN AMERICAN LIFE (1963); D. HOLLINGER, IN THE AMERICAN PROVINCE: STUDIES IN THE HISTORY AND HISTORIOGRAPHY OF IDEAS (1985); R. JACOBY, THE LAST INTELLECTUALS: AMERICAN CULTURE IN THE AGE OF ACADEME (1987); P. JOHNSON, INTELLECTUALS (1988); H. KALVEN, JR., A WORTHY TRADITION: FREEDOM OF SPEECH IN AMERICA (1988); C. LASCH, THE CULTURE OF NARCISSISM (1979); C. LASCH, THE NEW RADICALISM IN AMERICA, 1889-1963: THE INTELLECTUAL AS A SOCIAL TYPE (1965); H. MAY, THE END OF AMERICAN INNOCENCE: A STUDY OF THE FIRST YEARS OF OUR OWN TIME, 1912-1917 (1960); L. PERRY, INTELLECTUAL LIFE IN AMERICA: A HISTORY (1984); M. PETERSON, THE JEFFERSON IMAGE IN THE AMERICAN MIND (1960).

6. *See infra* notes 81-83 and accompanying text. Sociological jurisprudence is "[t]he general name for those approaches to the study of law, in general, which have more regard to the working of law in society than to its form or content." D. WALKER, THE OXFORD COMPANION TO LAW 1153 (1980). Indeed, "[s]ociological jurists look on legal institutions, doctrines, and precepts functionally; the form of legal precepts is the means only. They have very divergent philosophical views." *Id.* An appreciation of the history of the sociological school of jurisprudence is helpful as a predicate for exploring more specific intellectual histories of law.

> Montesquieu may be looked on as the forerunner of the school; he tried to trace the effect of social environment on the law. The initial steps were taken by Jhering whose *Der Zweck im Recht (Purpose in Law, translated as Law as a Means to an End)* develops aspects of analytical positivism and combines them with some utilitarian ideas; the purpose was the protection of interest. In Germany the move for a sociological jurisprudence was led by Ehrlich and Kantorowicz and this led in Germany to the "Jurisprudence of Interests" school of which the leader was Heck.
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> In the U.S., the forerunner was Mr. Justice Holmes, succeeded by Mr. Justice Cardozo and, among academics, Roscoe Pound, followed in Australia by Stone and Paton. Pound stated the [program] of the sociological school as comprising: study of the actual social effects of legal institutions, precepts and doctrines; study in preparation for lawmaking; study of the means of making legal precepts effective in action; study of judicial method; sociological legal history; recognition of the importance of individualized application of legal precepts; a ministry of justice; and to make effort more effective in achieving the purpose of the legal order. Much attention is devoted to the interests which law seeks to protect, individual interests, social interests and public interests. This study does not, however, help to decide the crucial issues, how particular interests are to be weighed and compared one with another.
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> A divergent branch of sociological jurisprudence is realism, the approach of jurists principally in the U.S. who regard what the courts will, in fact, do in particular cases as being the law. Notable figures adopting this standpoint have been Gray, Mr. Justice Holmes, Frank, and Llewellyn.

Id. An intellectual history of American environmental law, therefore, is consistent with broad tenets

historical inventory and prospectus of several categories of intellectual ideas drawn from fields as diverse as biology, economics, and ethics, which have impacted the development of American environmental law over the last thirty years, and in some cases, are still affecting the development today.[7]

In proposing this intellectual synthesis, I draw for inspiration and guidance on two key propositions about the nature of ideas, in general, and the history of ideas, in particular. As the philosopher Immanuel Kant reasoned, ideas are the conceptions by which we think about things. Ideas are the terms in which we state fundamental problems as well as the notions we employ in defining issues and discussing them. As the chief substance of our thought, they are *what* we think as well as what we think *about*.[8] Moreover, as stated by Professors Jacob Bronoski and Bruce Mazlish in their masterful work *The Western Intellectual Tradition*:[9]

> The history of ... ideas ... is necessarily a history of movement. The movement is created by that which gives life to ideas: by the interplay of all the interests of the mind, by the pressure of events, and by the expression of personalities.[10]

Bronoski and Mazlish went on to observe that intellectual history should be approached as "[a] complex of people and groups with conflicting ideas which yet have a common direction...."[11]

II. ENVIRONMENTAL LAW: THE BEAUTY OF COMPLEXITY

In seeking to better understand and describe the major intellectual contributions to the evolving sweep of American environmental law from 1961 to the present, it is instructive to begin discussion with a general qualitative description of the prevalent structure, processes and content of the environmental legal regime.[12] T.S. Eliot noted that: "As we grow older, the world becomes

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of sociological jurisprudence if the history seeks to identify diverse economic, ethical, and ecological ideas as a means to the social ends of environmental protection and enhancement.

7. *See infra* notes 84-228 and accompanying text.

8. *See generally Idea* in 2 GREAT IDEAS OF THE WESTERN WORLD 761 (M. Adler ed. 1985).

9. J. BRONOSKI & B. MAZLISH, *supra* note 5.

10. *Id.* at xiii.

11. *Id.*

12. There are several excellent casebooks and treatises that describe the structure, processes, and content of American environmental law. *See generally* ENVIRONMENTAL POLICY LAW: CASES, READINGS AND TEXT (T. Schoenbaum ed. 1985); ENVIRONMENTAL PROTECTION: LAW AND POLICY (F. Anderson, D. Mandelker & A.D. Tarlock eds., 2d ed. 1990); R. FINDLEY & D. FARBER, ENVIRONMENTAL LAW: CASES AND MATERIALS (2d ed. 1985); F. GRAD, ENVIRONMENTAL LAW (3d ed. 1985); THE LAW OF ENVIRONMENTAL PROTECTION: CASES-LEGISLATION-POLICIES (J.

stranger, its pattern more complicated."[13] Such is the lot of modern environmental law: As it has grown older it has become stranger, its patterns more complicated. Indeed, the overarching *idea of complexity* is essential to understanding the meaning and operation of modern environmental law and policy.

As I previously concluded in a book review[14] of Professor William Rodgers' two-volume treatise on environmental law, *Environmental Law: Air and Water*,[15] the idea of complexity in modern American environmental law can be subdivided into three parts: (1) the multiplicity of *different interest groups*; (2) the notion of *evolutionary change* in environmental law; and (3) the bipolar principles of *absolutism* and *utilitarianism* that are at work in current environmental statutes, case decisions, and administrative regulations.[16]

With regard to the first aspect of complexity -- the multiplicity of *different interest groups* in modern environmental law -- Professor Rodgers has elegantly observed that:

> In this field, each statement of facts is a multidisciplinary saga, with loose ends trailing off to the limits of the knowledge of a variety of scientific disciplines. Environmental law arises in a world of many parties, where issues are linked together in mysterious ways, and each 'definitive' resolution is but the prelude to future bargaining, compromise, and defection. The field presents an ongoing kaleidoscope of tussling organizations, interests, jurisdictions, and states where strategies, goals and outcomes are subject to constant redefinition.[17]

In a word, American environmental law is infused and suffused with "politics." Stated differently, environmental law involves competing ideologies of the public good. As noted by political scientist Professor Samuel Hays of the University of Pittsburgh, most environmental debate in recent years has been

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Bonine & T. McGarity eds. 1984). *See also* T. HOBAN & R. BROOKS, GREEN JUSTICE: THE ENVIRONMENT AND THE COURTS (1987); LAW OF ENVIRONMENTAL PROTECTION (S. Novick, D. Stever & M. Mellon eds. 1988); W. RODGERS, JR., ENVIRONMENTAL LAW (1977); W. RODGERS, JR., ENVIRONMENTAL LAW: AIR AND WATER (1986); W. RODGERS, JR., ENVIRONMENTAL LAW: PESTICIDES AND TOXIC SUBSTANCES (1988); F. SKILLERN, ENVIRONMENTAL PROTECTION: THE LEGAL FRAMEWORK (1981).

13. T.S. ELIOT, EAST COKER, PART V (1940), *quoted in* J. BARTLETT, FAMILIAR QUOTATIONS 807 (15th ed. 1980).

14. Blomquist, *The Beauty of Complexity* (Book Review), 39 HASTINGS L.J. 555 (1988).

15. W. RODGERS, JR., ENVIRONMENTAL LAW: AIR & WATER *supra* note 12.

16. Blomquist, *supra* note 14, at 566-70.

17. 1 W. RODGERS, JR., *supra* note 15, at v.

engendered "through personal circumstances and immediate needs, shared with others through common experiences."[18] Indeed, Hays goes on to contend that "environmental affairs [in America] have provoked much action but little focused reflection."[19] On the other hand, Professor Thomas Schoenbaum of the University of Georgia Law School makes a more refined point about the interdisciplinary nature of environmental law and politics by observing that while American environmental law "cannot be separated from politics.... [n]evertheless, the political debate is usually carried on not directly, but in the context of the legal issues involved."[20]

In my judgment, Professor Schoenbaum's view is more accurate and informed than Professor Hays' critical legal studies perspective that environmental law is essentially equivalent to environmental politics or environmental ideology.[21] Indeed, Professor Schoenbaum's *contextual view* of the indirect effect of political ideologies and interest groups on the development of environmental law implicitly acknowledges the role of larger, more dispassionate, intellectual concepts in the formulation and evolution of American environmental law.

With regard to the second part of the tripartite nature of complexity in modern American environmental law -- the notion of recurring *evolutionary* change -- it has been argued that each new environmental regulatory effect "produces its own dissatisfactions, gives rise to new 'gaps' to be filled, and creates its own demands for more regulation."[22] Continued evolutionary change tends to characterize modern American environmental law "because the facts, players, policies, rules, and strategies invariably drift and move when plotted over time."[23] Evolutionary change, then, as an aspect of the overarching complexity of environmental law, can best be understood as an inherent intellectual taproot that, while hidden and beneath the surface, nourishes and affects the continued growth of environmental laws and policies.

With regard to the third part of the tripartite nature of complexity in modern American environmental law, Professor Rodgers, again, sheds penetrating light on the subject of different, apparently diametrically opposed,

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18. S. HAYS, BEAUTY, HEALTH AND PERMANENCE: ENVIRONMENTAL POLITICS IN THE UNITED STATES, 1955-1985 65 (1987).

19. *Id.* at 10.

20. T. SCHOENBAUM, *supra* note 12, at xxii.

21. *See generally* THE HARVARD SOCIETY FOR LAW AND PUBLIC POLICY AND THE FEDERALIST SOCIETY FOR LAW & PUBLIC POLICY STUDIES, A DISCUSSION ON CRITICAL LEGAL STUDIES AT THE HARVARD LAW SCHOOL (1986); THE POLITICS OF LAW: A PROGRESSIVE CRITIQUE (D. Kairys ed. 1982).

22. 1 W. RODGERS, JR., *supra* note 15, at 17.

23. *Id.* at v.

legal standards at work in current environmental statutes, case decisions, and administrative regulations. In his writings, Rodgers has pointed out the existence of "dramatic collisions between absolute rights and utilitarianism" found, for instance, in the common law principles of nuisance, and in the statutory enactments of the Clean Air and Clean Water Acts.[24] According to Rodgers, "[t]hrough the lens of *absolute rights*, on the one hand, health standards or environmental quality regulations are paramount, while pleas for economic efficiency are viewed as irrelevant and greeted with a 'dollars-be-damned-attitude.'"[25] Examples of *absolutist rules* under the Clean Air Act, for example, include: statutory principles of no significant deterioration of air quality; visibility provisions; and best technology rules for pollution control equipment.[26] Likewise, the Clean Water Act -- by way of further illustration -- reflects absolutism in several statutory provisions. Potent examples include: oil spill provisions that "forbid all discharges causing so much as a sheen on the surface of the water;"[27] "the [goal] ... [of] fishable/swimmable waters everywhere by July 1, 1983 and no discharges anywhere by January 1, 1985"[28] promulgated by Congress in 1972;[29] several "best technology" formulations that press technology "beyond the limits of benefit-cost dictates;"[30] and, the mandate to clean up hazardous pollutants in the nation's waters without regard to costs.[31]

At the other end of the jurisprudential spectrum, several provisions of modern environmental statutes take a *utilitarian* -- or balancing -- approach to problems of pollution and resource depletion. For example, under the federal Clean Air Act, the penalty provisions for violation of air standards can be viewed "as a model of economic efficiency."[32] Similarly, the Clean Air Act's

> offset emission regulations and the bubble proposals offer a splendid [utilitarian] opportunity for the market analyses popular now in the law schools. Congress even found it necessary to make clear that ... oil companie[s] could recover in price increases the costs of installing a vapor recovery system, a proposition some might consider self-evident.[33]

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24. *Id.* at 19.
25. *Id.*
26. *Id.*
27. 1 W. RODGERS, JR., ENVIRONMENTAL LAW: AIR AND WATER (1986).
28. *Id.*
29. Federal Water Pollution Control Act of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 896.
30. 1 W. RODGERS, JR., *supra* note 27, at 21.
31. *Id.*
32. *Id.* at 8.
33. *Id.*

The Clean Water Act, by way of comparison, also contains "a host of cost-effectiveness formulations"[34] that suggest an endorsement of economic efficiency. "Examples of utilitarianism include the municipal sewer construction grants program, the dredge and fill rules, and provisions that pertain to review of water quality standards."[35]

The dichotomy between absolutism and utilitarianism demonstrates the divergent themes and apparently "contradictory impulses" found in modern American environmental law.[36] These contradictory impulses can be explained by pure political theory -- what Professor Hays refers to as the product of "reaction by long-established commodity producers to ... new consumer politics," which by way of persistent challenge and opposition to absolutist tendencies by grass roots and national environmental groups "succeeded in turning back, muting [and] restraining many an environmental effect" through "maximum feasible opposition and minimum feasible retreat."[37] Yet, like my earlier disagreement with Professor Hays, I think that this uni-dimensional political explanation is misinformed or uninformed about the potential influence of broader, intellectually-inspired ideas in the makeup and development of modern American environmental law.[38] As I have argued elsewhere, a

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34. *Id.*

35. Blomquist, *supra* note 14, at 569.

36. 1 W. RODGERS, JR., *supra* note 27, at 19.

37. S. HAYS, *supra* note 18, at 288.

38. I am grateful to Professor Richard O. Brooks, Director of the Environmental Law Center and Professor of Law at the Vermont Law School, for providing me with the insight that intellectual ideas have not fulfilled their full potential in influencing the content of environmental law. In this regard, Brooks has observed in a draft unpublished manuscript:

> Although the environmental movement introduced new forms of ecological thought and practice which might have implied a revolution in conventional legal thought and practice -- that revolution, in many important ways is unrealized. For example, the moral and intellectual insights of the new discipline of ecology are barely visible in the corpus of environmental law. (The one exception may be the National Environmental Policy Act). The failure of that potential revolution is not the fault of the American people nor of the legions of committed environmentalists. The fault lies at the feet of us bureaucrats, lawyers, and scholars who have tarnished that dream with unimaginative legal responses.

R. BROOKS, A NEW AGENDA FOR MODERN ENVIRONMENTAL LAW (Vermont Law School's Environmental Law Center, draft July, 1989) (unpublished manuscript) 1 (footnotes omitted).

Professor Brooks asserts that the conventional legal regime fails to fully utilize innovative and exciting intellectual ideas. He notes:

> When Earth Day [1970] was celebrated, environmental problems were viewed in global perspective, as threats to the viability of our earth's ecosystem. We all felt the pull of grand and exciting environmental ideals, requiring the earth saving action of everyone. Over the past two decades, the charisma of the environmental response has been routinized into bureaucracy and law; a conventional legal organization, manned by tired and overworked officials, has been established to cope, day-in, day-out, with environmental problems.

plausible intellectual mode of unity between absolute rights and principles of utilitarianism can be discerned by analogy to various equitable maxims of chancery practice where apparently antipodal concepts are blended together in the legal process.[39] Jurists have intellectually expressed the need "for law to balance competing interests using general notions of justice, fair play, and practicality" in such equitable maxims as: "Equity suffers no right to be without a remedy;" "Equity regards substance rather than form;" "Equity follows the law;" "Equity will not order the doing of an impossible act;" and, "Equity prevents mischief."[40] Therefore, understood as a potentially synthesizing *intellectual pursuit* conducted within the *context* of political interaction, environmental law can be usefully viewed as "an elaborate balancing process between the rights of individuals and the needs of the social community."[41]

> The current legal approach to environmental problems illustrates a social engineering approach to these problems. The conventional pattern of environmental law conceives its problem to be the effective achievement of prosaic objectives, often stated in dull engineering prose. These objectives specify levels of ambient clean air and water, planned protection of selected ecologically-sensitive land areas such as wetlands, and proper marketing, use, or disposal of toxic substances. In short, we have taken a business-as-usual cautious legal approach.
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> No constitutional changes, no new forms of laws, no major new institutions were deemed to be required to transform our way of life. Instead, traditional positive law in the form of a complex array of statutes are adopted by centralized government -- the federal legislature. Federal administrative bureaucracies, manned by lawyers and environmental specialists, employ plans and exhaustive and exhausting regulations as the first step in the cleanup or pollution prevention process. (When excited environmental law students meet these statutes, plans and regulations for the first time, their collective heart sinks under the boring technicality of the enterprise.) These federal bureaucracies are assisted by the states and their state bureaucracies in what some have called 'administrative federalism, in which states are simply viewed as enforcement arms of the federal government.'
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> Under the bureaucratic regime of traditional environmental protection, the abstract disciplines of law, economics, environmental sciences and policy sciences, i.e. risk assessment, ecosystem modelling and benefit/cost analysis become the opera glasses through which the Green Globe is viewed. The starting point of the legal process is the environmental symptom -- usually some form of pollution; the ending point is the removal or control of this symptom.
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> This conventional legal model dominates the attention of legal scholarship, guides the content of formal education programs of environmental lawyers, planners and administrators, and creates the large bureaucracies which in turn hire environmental law graduates. * * * But I grow more upset when I realize that the conventional legal model the students have learned guides the way in which they and most environmental lawyers, administrators and planners see and think about the environment and the law, and the way in which scholars explore the needs for reform of that law.

Id. at 2-4 (footnotes omitted). *See also infra* note 83 and accompanying text.

39. Blomquist, *supra* note 14, at 569-70.

40. *Id.* (quoting 27 AM. JUR. 2D, *Equity* § 119 (1968)).

41. *Id.* at 570.

III. A SURVEY OF IMPORTANT WRITINGS ON ENVIRONMENTAL HISTORY

For the reader interested in broadly pursuing historical studies of "things environmental," there is a wide assortment of books and articles -- largely written in the years following World War II -- to choose from.[42] These diverse environmental histories can be roughly sorted into four categories: (1) socio-economic-political histories of environmentalism; (2) philosophical and theological histories of environmental issues; (3) histories of ecology; and (4) "future histories" (involving projections and forecasts and speculations based on environmental trends). Without attempting to exhaustively catalog every environmental historical study, a few of the most interesting and important historical works in each of the four categories should be briefly reviewed to give a flavor for the existing historical literature on the subject.

First, with regard to *socio-economic-political histories*, E.F. Schumacher's 1973 book *Small is Beautiful: Economics as if People Mattered*[43] is a classic historical study. "Schumacher's book [r]eache[s] backward, ... embrac[ing] communal, handicraft, tribal, guild, and village lifestyle[s] as old as the neolithic cultures. In that sense, it is not an ideology at all, but a wisdom gathered from historical experience."[44] Another historical classic in this genre is Barry Commoner's 1971 book *The Closing Circle: Nature, Man & Technology*.[45] Commoner concludes his book by stating:

> Human beings have broken out of the circle of life, driven not by biological need, but by the social organization which they have devised to 'conquer' nature: means of gaining wealth that are governed by requirements conflicting with that which govern nature.
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>
> [T]he world is being carried to the brink of ecological disaster not by a singular fault, which some clever scheme can correct, but by the

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42. *See generally* T. HOBAN AND R. BROOKS, GREEN JUSTICE: THE ENVIRONMENT AND THE COURTS 231-46 (1987) (bibliography of general philosophical works; biological and ecological works; literary ecological classics; planning works; planning, law, and the environment; basic causes of environmental problems; economics; political science, public administration, history and the environment; statewide experiences; ethics and psychology; the history of ideas; jurisprudential works; environmental works dealing with specific problems or environments; other ideas of law having relevance to environmental law). *See also* R. NASH, THE RIGHTS OF NATURE: A HISTORY OF ENVIRONMENTAL ETHICS 273-78 (1989) (selected annotated bibliography of literature on the history of environmental ethics, broadly conceived).

43. E. SCHUMACHER, SMALL IS BEAUTIFUL: ECONOMICS AS IF PEOPLE MATTERED (1973).

44. T. Roszak, *Introduction*, to *id.* at 4.

45. B. COMMONER, THE CLOSING CIRCLE: NATURE, MAN & TECHNOLOGY (1971).

> phalanx of powerful economic, political, and social forces that constitute the march of history. Anyone who proposes to cure the environmental crisis undertakes thereby to change the course of history.[46]

Samuel P. Hays has made an important contribution to the political history of environmental matters in America by his 1987 study *Beauty, Health and Permanence: Environmental Politics in the United States, 1955-1985.*[47] According to Professor Hays, his book traces the post-World War II

> .... transition from an older stress on efficient development and use of material resources such as water, forests, and soils known as the conservation movement, which took place in the first four decades of the twentieth century. Conservation gave way to environment after World War II amid a rising interest in the quality of life beyond efficiency in production.[48]

Another significant socio-economic-political history of environmentalism written in the last three decades includes James Whorton's 1974 book, *Before Silent Spring: Pesticides & Public Health in Pre-DDT America*,[49] which examines the period of time toward the turn of the twentieth century where "economic necessities, technological limitations, and pressures on regulatory agencies" brought America to its "dilemma of seemingly having to poison our food in order to protect it."[50] In another significant book, Douglas Weiner has written about the socio-political origins of Soviet conservation policies in his 1988 book *Models of Nature: Ecology, Conservation and Cultural Revolution in Soviet Russia.*[51]

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46. *Id.* at 298-99. For an updated version of Barry Commoner's thinking, see B. COMMONER, MAKING PEACE WITH THE PLANET (1990) (planned to coincide with Earth Day 1990).

47. S. HAYS, *supra* note 18.

48. *Id.* at 3. Professor Hays also points out that:

> Evolving environmental values were closely associated with rising standards of living and levels of education. These changed markedly after the war. Personal real income grew and the percentage of Americans with college education increased. The social context within which environmental values flourished was twofold: younger people and the more educated. With each level of age from younger to older, environmental interest fell; and with each level of education from elementary school to college degree, it rose.

Id.

49. J. WHORTON, BEFORE SILENT SPRING: PESTICIDES AND PUBLIC HEALTH IN PRE-DDT AMERICA (1974).

50. *Id.* (book jacket synopsis).

51. D. WEINER, MODELS OF NATURE: ECOLOGY, CONSERVATION AND CULTURAL REVOLUTION IN SOVIET RUSSIA (1988).

> The author describes the socio-political origins of Soviet conservation policies. After

The second major category of environmental historical works pertains to *philosophical and theological histories* of things environmental. In this category, two books are of particular importance: John Black's 1970 book, *The Dominion of Man: The Search for Ecological Responsibility*[52] and William Leiss' book, *The Domination of Nature*[53] published in 1972. These books review the ideas -- some going back to the Old Testament's charge for humans to have dominion over nature[54] -- that have contributed to present environmental problems. A 1980 book by Australian philosopher John Passmore, *Man's Responsibility for Nature: Ecological Problems and Western Traditions*,[55] provides insights to both environmental philosophy and intellectual history. Passmore concomitantly identifies grounds for environmental responsibility in Western traditions and values, while demonstrating the heritage of resistance to this idea encountered in Western thought. Eugene C. Hargrove extends Passmore's study of the ebb and flow of environmental ethics in Western philosophical thought in his 1988 book *Foundations of Environmental Ethics*.[56]

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describing the emergence of a 'conservation sensibility' among a small section of Russia's educated elite before the October 1917 Revolution, the author analyzes the way in which changes in the political regime and national mood affected Russian attitudes toward nature. He points out, for example, that while the period of Lenin's rule and of the new Economic Policies of the mid-1920's spurred the adoption of pioneering approaches to the environment featuring the creation of a network of virgin nature reserves dedicated to ecological study, the succeeding turbulence of Stalin's Five Year Plans in the 1930's proved inhospitable to ecologically informed conservation. Indeed, the book points out in stark political terms that because Soviet conservationists, using ecological arguments, sought to halt or modify such central, heroic development projects as collectivization, the introduction of exotic fauna and flora, and the construction of huge hydroelectric installations, they became vulnerable to the charge of purveying counterrevolutionary scientific theories.

Id. (book jacket synopsis).

For further interesting socio-economic-political histories of environmentalism, see also M. BROWN, LAYING WASTE: THE POISONING OF AMERICA BY TOXIC CHEMICALS (1979); CONGRESSIONAL QUARTERLY INC., THE BATTLE FOR NATURAL RESOURCES (1983); J. LASH, K. GILLMAN & P. SHERIDAN, A SEASON OF SPOILS: THE STORY OF THE REAGAN ADMINISTRATION'S ATTACK ON THE ENVIRONMENT (1984).

52. J. BLACK, THE DOMINION OF MAN: THE SEARCH FOR ECOLOGICAL RESPONSIBILITY (1970).

53. W. LEISS, THE DOMINATION OF NATURE (1972).

54. *See Genesis* 1:28.

55. J. PASSMORE, MAN'S RESPONSIBILITY FOR NATURE: ECOLOGICAL PROBLEMS AND WESTERN TRADITIONS (1980).

56. E. HARGROVE, FOUNDATIONS OF ENVIRONMENTAL ETHICS (1988). *But cf.* D. SHI, THE SIMPLE LIFE: PLAIN LIVING AND HIGH THINKING IN AMERICAN CULTURE (1975) (shows how from Jefferson to Thoreau to Louis Mumford to Scott Nering and the hippies of the 1960s, advocates of the "simple life" in relation to the environment have formed a rich and diverse American cultural tradition).

Two books by intellectual historian Roderick Nash are particularly important in probing the roots and recent past of American ethical views about the environment. In his 1967 book, *Wilderness and the American Mind*,[57] Nash contends: "Wilderness was the basic ingredient of American civilization. From the raw materials of the physical wilderness Americans built a civilization; with the idea or symbol of wilderness they sought to give that civilization identity and meaning."[58] In his recent book, *The Rights of Nature* (1989),[59] Nash elegantly focuses on more contemporary times including historical discussions of the deep ecology movement,[60] animal rights,[61] and ecofeminism.[62]

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57. R. NASH, WILDERNESS AND THE AMERICAN MIND (1967).

58. *Id.* at vii.

59. R. NASH, *supra* note 42.

60. *Id.* at 146-47.

> Deep ecology, as George Sessions has pointed out, owes much to Norwegians. As early as 1941 Peter Zapffe outlined a non-anthropocentric theory of human-environment relations that he called 'biosophy.' And in 1974 another Norwegian, Sigmund Kvaloy, coined 'ecophilosophy' in an article in *North American Review*. But it remained for Arne Naess, the eminent Norwegian philosopher, Nazi resister, and mountaineer to exert the most impact on the new American environmentalism when he proposed 'deep ecology.' Naess also believed that ecologists and philosophers should pool their wisdom in a new discipline called 'ecosophy.' He first announced his concepts in a lecture in 1972 and published the paper in English the following year. The year 1973, then, saw the genesis of both the modern animal-rights approach to ethical extension (Peter Singer's essay was also published in that year) and deep ecology. Although professional philosophers inspired both perspectives, the two viewpoints proved ... to be uneasy allies in the new environmentalism.
>
> For Arne Naess and the American exponents of deep ecology whom he inspired, notably George Sessions and Bill Devall, the rise of ecology entailed philosophical and religious principles that completely undermined traditional ways of understanding the human-environment relationship, or what deep ecologists frequently called the 'dominant paradigm' of Western thought regarding nature. The most radical component of the new paradigm was what Naess called 'ecological egalitarianism.' Other deep ecologists commonly used 'biocentrism' or 'anti-anthropocentrism' to refer to the same philosophy, and Naess spoke of 'a core democracy in the biosphere.' The central idea was the right of every form of life to function normally in the ecosystem or, in Naess' words, 'the equal right to live and blossom.'

Id. (footnotes omitted). *See also* B. DEVALL & G. SESSIONS, DEEP ECOLOGY: LIVING AS IF NATURE MATTERED (1985); DEEP ECOLOGY (M. Tobias ed. 1985).

61. R. NASH, *supra* note 42 at 5-6.

> But 'specieism' or 'human chauvinism' persisted [after extension of rights to blacks and women] and animal rights was the next logical stage in moral extension. By the 1970s there was growing support in Anglo-American thought for what Peter Singer was the first to call 'animal liberation.'

Id. (footnotes omitted). *See also id.* at 22-23, 24-28, 151-52, 159-60.

62. *Id.* at 145.

> Almost every feminist writer noted the parallels between the 'rape' of the 'virgin' land and abuse of women. Consequently the woman's movement of the 1960s and 1970s -- coupled with growing public understanding of ecology, Indian religions, and Asian ying-yang theology -- focused attention on nature as an exploited female presence.

There are a few good historical treatments of environmental theological issues. A good collection is the 1986 work, edited by Eugene Hargrove, *Religion and Environmental Crisis*.[63] In this book, various authors take a new look at the contributions that Western as well as Eastern religions have made to modern environmentalism. In a similar vein, the editors of the 1989 book, *Environmental Philosophy: The Nature of Nature in Asian Traditions of Thought*[64] take an approach that is organized around various Asian worldviews of the sacredness of nature.

In the third major category of historical environmental works -- *histories of ecology* -- there are only a handful of good books. Two books are particularly significant. In his 1977 work, *Nature's Economy: The Roots of Ecology*,[65] Donald Worster makes an important contribution to the literature by pointing out that:

> The term 'ecology' did not appear until 1866, and it took almost another hundred years for it to enter the vernacular. But the *idea* of ecology is much older than the name. Its modern history begins in the eighteenth century, when it emerged as a more comprehensive way of looking at the Earth's fabric of life: a point of view that sought to describe all of the living organisms of the Earth as an interacting whole, often referred to as the 'economy of nature.' This phrase gave

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> If nature and women were perceived as partners in subjugation, campaigns for their ethical consideration could be mutually supportive. Indeed, many bridged the two causes under labels such as 'ecofeminism,' 'ecosophy,' and 'gyn/ecology.' According to Ynestra King, 'Ecology, feminism, and liberation for all of nature, including ourselves, are joined.' But how did this connection work? Many contended that because of their role in the creation of life, women have traditionally been 'closer' to nature than men. The feminine mind knows best how to think about the human-nature relationship. 'Ecology,' King writes, 'requires a feminist perspective,' and Jim Cheney believes that 'holistic deep ecology is somehow feminist.' Susan Griffin makes the point more poetically: 'Woman speaks with nature ... she hears voices from under the earth ... wind blows in her ears and trees whisper to her.' The whispered message, according to Griffin and most feminist writers on environmentalism, is that interrelatedness, not hierarchy, is the way of nature and should become the central support for a new moral philosophy.

Id. (footnotes omitted).

63. RELIGION AND ENVIRONMENTAL CRISIS (E. Hargrove ed., 1986).

64. ENVIRONMENTAL PHILOSOPHY: THE NATURE OF NATURE IN ASIAN TRADITIONS OF THOUGHT (J. Callicott & R. Ames ed. 1989). *See also* EARTH MIGHT BE FAIR: REFLECTIONS ON ETHICS, RELIGION AND ECOLOGY (I. Barbour ed. 1972); ECOLOGY AND RELIGION IN HISTORY (D. Spring & E. Spring ed. 1974); J. Hughes, American Indian Ecology (1983); P. SANTMIRE, THE TRAVAIL OF NATURE: THE AMBIGUOUS ECOLOGICAL PROMISE OF CHRISTIAN THEOLOGY (1985); C. STEWART, JR., NATURE IN GRACE: A STUDY IN THE THEOLOGY OF NATURE (1983); WESTERN MAN AND ENVIRONMENTAL ETHICS (I. Barbour ed. 1973).

65. D. WORSTER, NATURE'S ECONOMY: THE ROOTS OF ECOLOGY (1977).

> birth to a rich set of ideas out of which emerged the [biological] science of [ecology]....[66]

In the course of his historical study of ecology, Worster discusses such thinkers as Linnaeus -- the great Swedish "man of flowers," the evolutionary theories of Charles Darwin and Alfred North Whitehead's view of the "organic unity" of all nature.[67]

Similarly, Anna Bramwell in her 1989 book *Ecology in the 20th Century: A History*[68] traces the scientific and political history of ecology. An implicit insight of her work is that a combined scientific and political study of ecology is essential. She observes that:

> The word ecology is widely used today in the normative sense, not in the biological sense. The science of ecology is one that considers energy flows within a closed system. The normative sense of the word has come to mean the belief that severe or drastic change within that system, or indeed any change which can damage any specie within it, or that disturbs the system, is seen as wrong. Thus, ecological ideas have come to be associated with the conservation of specific patterns of energy flows. These patterns can be relatively small in scale, such as a one-acre wetland site; or it can be the weather pattern resulting from the Amazon rain forests, or larger patterns that affect the continuity of human existence.[69]

The fourth category of environmental histories entails what I have labeled *"futuristic" environmental histories*. An enormous number of books and articles providing environmental projections, forecasts and speculations based on historical records or trends have appeared in recent years. Some of the more significant include the following. In 1980, the United States Council on Environmental Quality and the United States Department of State issued their

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66. *Id.* at x.

67. R. NASH, *supra* note 42 at 59-60.

> Utilizing new findings that constantly interacting electromagnetic particles were the essence of matter, Whitehead contended that the identity and purpose of every object in the universe arose from its relationship to everything else. All things were in flux at all times. This continuing interaction at the molecular level of all matter -- animate and inanimate -- defined reality. It followed for Whitehead that every organism, indeed every atom, had intrinsic value if only for the contribution it made to the ongoing reality of the universe on what he called 'process.'

Id.

68. A. BRAMWELL, ECOLOGY IN THE TWENTIETH CENTURY: A HISTORY (1989).

69. *Id.* at 4. *See also* S. FLADER, THINKING LIKE A MOUNTAIN: ALDO LEOPOLD AND THE EVOLUTION OF AN ECOLOGICAL ATTITUDE TOWARD DEER, WOLVES AND FORESTS (1974).

ponderous report, *The Global 2000 Report to the President: Entering the Twenty-First Century.*[70] The report summarized its key holdings by noting that:

> If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today.[71]

One of the more important contributors to "futuristic" environmental histories is the Washington, D.C.-based Worldwatch Institute, which has issued annual "state of the world" reports from 1984 through 1990.[72] These reports focus on major ecological, environmental, and demographic trends and the Institute uses these trends to propose major policy initiatives needed to stabilize the climate, improve air quality and reduce poverty. They focus on developing a "sustainable" society.[73] Moreover, a number of citizen environmental conferences have led to the generation of "futuristic" environmental histories. Prime examples include the 1989 book *Earth Conference One: Sharing a Vision*

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70. UNITED STATES COUNCIL ON ENVIRONMENTAL QUALITY AND UNITED STATES DEPARTMENT OF STATE, THE GLOBAL 2000 REPORT TO THE PRESIDENT: ENTERING THE TWENTY-FIRST CENTURY (1980).

71. *Id.* at 1.

72. *See* STATE OF THE WORLD (L. Brown ed. 1984); STATE OF THE WORLD (L. Brown ed. 1985); STATE OF THE WORLD (L. Brown ed. 1986); STATE OF THE WORLD (L. Brown ed. 1987); STATE OF THE WORLD (L. Brown ed. 1988); STATE OF THE WORLD (L. Brown ed. 1989); STATE OF THE WORLD (L. Brown ed. 1990).

73. Lester Brown discusses the idea of sustainability in the 1984 STATE OF THE WORLD report, *supra* note 72, as follows:

> Over the past generation the world has yielded to an excessive dependence on oil, moved from farming soils to mining them, and begun to consume the economy's biological support systems. In short, the world economy has moved onto a development path that is unsustainable. Although at least some political leaders and their economic advisers are vaguely aware of this, the effort to return to a sustainable development path is not well defined. Most national governments, lacking a clearly defined development strategy, are attempting to "muddle through." As a result, successes are infrequent, often outnumbered by failures.
>
> The essential components of a sustainable development strategy are straightforward. They include stabilizing population, reducing dependence on oil, developing renewable energy resources, conserving soil, protecting the earth's biological support systems, and recycling materials. The good news is that in each case at least a few countries are making some impressive progress, providing a model for others. The bad news is that in only one area, reducing dependence on oil, is the worldwide performance close to adequate.

Id. at 2-3.

for Our Planet,[74] the 1988 book edited by P. Borrelli entitled *Crossroads: Environmental Priorities for the Future*[75] and the 1985 book *An Environmental Agenda for the Future*.[76]

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74. A. VITTACHI, EARTH CONFERENCE ONE: SHARING A VISION FOR OUR PLANET (1989). One of the declarations to come out of the conference observed:

> We recognize that it is not only human survival but the survival of the whole planet, with its interdependent forms of life, which is threatened. The Earth, as recent environmental evidence confirms, is delicately balanced and vulnerable. Each one of us must accept the responsibility to care for and protect the Earth, which is our home.
>
> We have derived from our meeting a vivid awareness of the essential oneness of humanity and also the realization that each human person has both a spiritual and a political dimension. We acknowledge the inadequacy of attitudes and institutions within all our traditions to deal with our present global crisis.
>
> *We therefore now affirm our shared vision of survival, and we commit ourselves to work for a fundamentally changed and better world. We urge the leaders of the world to adopt new attitudes and to implement new policies based on sustainability and justice.*

Id. at 139-40 (emphasis in original).

75. CROSSROADS: ENVIRONMENTAL PRIORITIES FOR THE FUTURE (P. Borrelli ed. 1988). One of the chapters, Berle, *Managing the Future, If We Want To* in CROSSROADS, *supra*, melds past environmental trends with future projections in an elegant and powerful way. For example, lawyer Berle writes:

> The challenge then is to influence the nature of change so that a healthy Earth survives and we can have a significant impact on ... outcome. We can do it by defining our national security in terms of fostering a sound global environment rather than simply achieving an arms advantage. We can do it through economic activity and aid that assists worldwide efforts to limit population growth. We can do it by ensuring that the varying demands on our resources are considered before those resources are taken over by special interests.
>
> We need to do a better job of measuring the benefits of environmental protection. Every plant manager can describe to the penny how much control technology will cost, but the benefit of a pollution-free environment is much less quantifiable. Long-term impact on ecosystems cannot always be calculated. Putting a dollar value on the unknown risk of sustaining an undefined damage is impossible. But the lack of mechanisms to quantify does not mean that environmental protection is without value. When the damage becomes quantifiable, it may be too late to reverse or mitigate it. Since long-term costs and benefits frequently are impossible to calculate or compensate, one cannot make environmental policy decisions solely on the basis of currently anticipated cost figures. Everyone who argues that the cost of some environmental strategy is too high must be asked whether benefits of that strategy have been analyzed, whether all costs and all benefits have been considered, and what costs and benefits are also involved that cannot be measured.

Id. at 209-10.

76. AN ENVIRONMENTAL AGENDA FOR THE FUTURE (J. Adams, et al., ed. 1985). The editors provide a brief synopsis of American environmentalism from citizen actions spurring congressional protection of Yellowstone as the world's first national park in 1872; the "conservation movement" of the late nineteenth and early twentieth centuries; the environmental problems of the 1950s where "[t]he pressures of a burgeoning population led to a passion for acquisition and development of land and resources that overtook the nation;" the flurry of legislative activity in the 1970s after "Earth Day 1970." *Id.* at 2-4. In speaking of the future, the editors assert:

A recent special issue of the prestigious publication *Scientific American*, published in September 1989, focused on the theme *Managing Planet Earth.*[77] In a series of scientific and policy-based articles examining environmental and global trends, a number of prominent technical and policy thinkers examined prospects for managing environmental problems.[78] In a similar vein, Bill

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> Marked progress has been made in the ... years since passage of NEPA, but many of the problems it was meant to solve still remain. Congress has passed a multitude of laws, and the courts have in many instances upheld the lawsuits brought by citizens to force compliance with some recalcitrant elements in industry and government agencies. But compliance and enforcement are still spotty and not adequately achieving the purposes of the laws. And because the laws and regulations often have not dealt with root causes, they have been inadequate to cope with added problems that have arisen, partly from new technologies.
>
> Many of today's problems are global in scope and make local, regional, or even national solutions difficult. These problems include human population growth that is exceeding the capacity of some countries to feed and sustain their burgeoning numbers; toxic chemicals, developed with the intent of benefiting humankind, that turn out to be serious threats to health with side effects that kill and maim; the greatly increased burning of fossil fuels, producing atmospheric effects that could melt icecaps and flood coastal cities. Looming over all is the spectre of nuclear war with its massive immediate death and destruction, which could be followed by the cold and dark of nuclear winter spreading climatic change throughout the world, destroying the life support system, eliminating many species of plants and animals, and even threatening the survival of the human species.
>
> These and other global problems call for pragmatic approaches and an agenda that can help the nation look toward ways of meeting the environmental challenges of the next 15 years and on into the next century. Building upon the strategies that have brought results in the past two decades, citizens, working with government, must continue to find new ways to achieve solutions.

Id. at 4.

77. 261 *Sci. Am.* 46-175 (1989).

78. Clark, *Managing Planet Earth* in *id.* at 46 ("In the millennia since our species emerged, it has colonized the planet exuberantly. Can we summon the intelligence to understand the biological and physical systems of which we are a part, so that we can pursue economic growth and development in ecologically sustainable ways?"); Crosson & Rosenberg, *Strategies for Agriculture* in *id.* at 128 ("Agricultural science and technology may indeed find ways to feed 10 billion people 100 years from now, but social and economic changes will have to be made to persuade individual farmers to adopt methods that will boost food production without further degrading the environment"); Frosch & Gallopoulos, *Strategies for Manufacturing*, in *id.* at 144 ("Can the industrial way of life be maintained without exhausting resources, generating unmanageable amounts of waste and poisoning the environment? Creative engineering can provide an 'industrial ecosystem,' characterized by dematerialization and closed-system manufacturing"); Gibbons, Blair & Gwin, *Strategies for Energy Use* in *id.* at 136 ("Nuclear power, solar cells, wind and tide will all have roles in supplying energy for growth and development without aggravating the greenhouse effect. Yet exotic new energy sources alone cannot meet the challenge. Significant improvement in the efficiency of energy use is the real hope"); Graedel & Crutzen, *The Changing Atmosphere*, in *id.* at 58 ("The chemistry of the atmosphere is changing, in large measure because of gases emitted by such human activities as farming, manufacturing and the combustion of fossil fuels. The deleterious effects are increasingly evident; they may well become worse in the years ahead"); Keyfitz, *The Growing Human Population* in *id.* at 118 ("Populations will stabilize as development

McKibben in his 1989 book *The End of Nature*[79] examines scientific trends and writes eloquently about the meaning of environmental change: about the sadness of a world where there is no escaping human beings. McKibben points out that although for decades civilization has polluted the earth, in the past those attacks were relatively local. In the present age -- with the global changes caused by planetary warming and depletion of the protective ozone shield -- humankind has altered the most elemental processes of life everywhere. McKibben points out that in a basic inversion of history the basic forces of nature (once beyond human reach) are now and will be forever the subject of human dominion.[80]

IV. TOWARD AN INTELLECTUAL HISTORY OF AMERICAN ENVIRONMENTAL LAW

Why, you may ask, do I propose to add yet another environmental history to the mass of existing histories on "things environmental"? I offer three reasons in response to this preliminary question of purpose. First, there is no comprehensive study of the intellectual history of modern American

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brings economic and social advances. Yet even as rates of increase decline, absolute numbers soar. How can poor nations progress when population growth not only hastens degradation of the environment but also threatens development itself?"); MacNeill, *Strategies for Sustainable Economic Development* in *id.* at 154 ("Economic growth in developing countries must accelerate to meet the needs of larger populations. Growth can be attained by means that do not damage the environment, and governments -- north and south -- will have to muster the determination to follow these alternative paths to development"); Maurits la Rivière, *Threats to the World's Water* in *id.* at 80 ("Water, most precious of all resources, is in short supply in many regions; almost everywhere increasing amounts of organic waste and industrial pollutants threaten its quality. Only international cooperation in the integrated management of water resources can ameliorate the situation"); Ruckelshaus, *Toward a Sustainable World* in *id.* at 166 ("Moving people and nations toward sustainability requires changes in values and social institutions on a scale comparable to two other transforming events in the history of humankind: the agricultural revolution and the Industrial Revolution. Some initial strategies are proposed"); Schneider, *The Changing Climate* in *id.* at 70 ("The earth owes its hospitable climate to the greenhouse effect, but now the effect threatens to intensify, rapidly warming the planet. Rising concentrations of carbon dioxide and other gases are the cause. The danger of warming is serious enough to warrant prompt action"); Wilson, *Threats to Biodiversity* in *id.* at 108 ("The elimination of habitats -- and in particular the felling of species-rich tropical rain forests -- is driving plant and animal species to extinction in unprecedented numbers. The accelerating loss of diversity is nothing less than a moral, scientific and economic tragedy"). (Summaries quoted from *id.* at 4-5.) *Cf.*, 263 *Sci. Am.* 54-163 (1990) (special symposium edition on *Energy for Planet Earth*); 174 *Nat'l Geog.* 765-945 (1988) (special symposium edition on global environmental problems).

79. B. MCKIBBEN, THE END OF NATURE (1989).

80. *Cf.* J. MCPHEE, THE CONTROL OF NATURE (1989). *See also*, L. TIMBERLAKE, ONLY ONE EARTH: LIVING FOR THE FUTURE (1987).

environmental law.[81] Second, such a history would give us a glimpse of the extent and influence of *ideas* -- as well as politics and ideology -- in the evolution of modern American environmental law. Finally, other intellectual histories of topics in American law have proven fruitful and have fit well within the tradition of the sociological school of jurisprudence (a counterweight to the law and economics and political analyses of law).[82]

Indeed, it is my thesis that ideas from a diverse spectrum of disciplines -- including economics, ecology and ethics -- have subtly influenced and continue

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81. A few scholars have provided useful excerpts and summaries of the intellectual roots of modern American environmental law. *See generally, What is Environmentalism, and What are its Intellectual Origins, Foundations, and Legal Ramifications?* in F. Anderson, D. Mandelker, & A. Tarlock, *supra* note 12, at 1-82 (discussing *inter alia* F. ANDERSON, A. KNEESE, P. REED, R. STEVENSON & S. TAYLOR, ENVIRONMENTAL IMPROVEMENT THROUGH ECONOMIC INCENTIVES (1977); M. COHEN, THE PATHLESS WAY: JOHN MUIR AND AMERICAN WILDERNESS (1984); L. DYE, BLOWOUT AT PLATFORM A: A CRISIS THAT AWAKENED A NATION (1971); S. FOX, JOHN MUIR AND HIS LEGACY: THE AMERICAN CONSERVATION MOVEMENT (1980); S. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT 1890-1920 (1959); A. LEOPOLD, A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE (1949); J. LOVELOCK, THE AGES OF GAIA: A BIOGRAPHY OF OUR LIVING EARTH (1988); L. MARX, THE MACHINE AND THE GARDEN: TECHNOLOGY AND THE PASTORAL IDEAL IN AMERICA (1964); D.H. MEADOWS, D.L. MEADOWS, J. RANDERS & W. BEHRENS, THE LIMITS TO GROWTH (1972); C. MEINE, ALDO LEOPOLD: HIS LIFE AND WORK (1988); E. ODUM, FUNDAMENTALS OF ECOLOGY (2d ed. 1959); W. OPHULS, ECOLOGY AND THE POLITICS OF SCARCITY (1977); J. PASSMORE, MAN'S RESPONSIBILITY FOR NATURE (1974); J. PETULLA, AMERICAN ENVIRONMENTAL HISTORY: THE EXPLOITATION AND FOUNDATIONS OF AMERICAN ENVIRONMENTAL ATTITUDES (2d ed. 1987); E. PURCELL, THE CRISIS OF DEMOCRATIC THEORY: SCIENTIFIC NATURALISM AND THE PROBLEM OF VALUE (1973); STONE, EARTH AND OTHER ETHICS (1987); I.K. THOMAS, MAN AND THE NATURAL WORLD: A HISTORY OF MODERN SENSIBILITY (1983); F. TURNER, REDISCOVERING AMERICA: JOHN MUIR IN HIS TIME AND OURS (1985); B. WARD & R. DUBOS, ONLY ONE EARTH (1972); P. WENZ, ENVIRONMENTAL JUSTICE (1988); COMPANION TO A SAND COUNTY ALMANAC (B. Callicott ed. 1988); Ackerman & Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1346 (1985); Hargrove, *The Historical Foundations of American Environmental Attitudes*, 1 ENVT'L ETHICS 209 (1979); Jenkins, *Nature's Rights and Man's Duties* in LAW AND THE ECOLOGICAL CHALLENGE 91 (E. Dais ed. 1978); Stroup, *Environmental Policy* in THE REAGAN RECORD AND THE TASK AHEAD, REGULATION 47 (No. 3 1988)).

See also Environmental Policy Perspectives, in T. Schoenbaum, *supra* note 12, at 1-74. Professors Bruce Ackerman and W. Hisser in their book CLEAN COAL/DIRTY AIR (1982) provide an insightful political and intellectual history of the Clean Air Act from its 1970 origin to its 1977 amendments. In a similar respect, Professor Peter Schuck's book, AGENT ORANGE: MASS TOXIC DISASTERS IN THE COURTS (1987) affords a remarkable mixture of factual analysis, case reportage, intellectual analysis and political review of Vietnam veterans' mass toxic tort suits for personal injuries and latent diseases allegedly suffered during the war. Professor William Rodgers, Jr., while he has not provided a complete and comprehensive intellectual history of American environmental law, does frequently refer to the influence and interrelationship of intellectual thought on environmental law and policy. *See generally* Blomquist, *supra* note 14, at 565.

82. *See* G.E. WHITE, TORT LAW IN AMERICA: AN INTELLECTUAL HISTORY (1980); Priest, *The Invention of Enterprise Liability: A Critical History of the Intellectual Foundations of Modern Tort Law*, 14 J. LEGAL STUD. 461 (1986).

to have potential influence on the development and evolution of modern American environmental law, albeit within a highly-charged political milieu. If we were able to document and understand the way that these ideas have been received by the courts, legislatures, and other legal decisionmakers; and, how governmental rules and decisions, in turn, have influenced further development of ideas, we would gain a richer, more complete understanding of the dynamics of contemporary American environmental law. I propose, then, to study ideas of intellectual elites -- such as scholars, judges, legislators and administrative staff persons -- as "social facts" in the continuing evolution of American environmental law.[83]

I end my lecture with an inventory and prospectus of several key intellectual congeries of ideas and persons that emerged during the period 1961-90 and that have had significant influences on modern American environmental law. This classification, of course, is tentative and open to further expansion, elaboration, and research. It, nevertheless, forms a blueprint of sorts for my work-in-progress over the next several years.[84]

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83. *See supra* notes 5-6 and accompanying text. I hope that in some small measure this work can remedy the scholarly deficiencies identified by Professor Richard Brooks. He writes:

> Rather than beginning with a fixed series of prosaic environmental objectives, environmental law should be guided by modern ecological perspectives which can offer a modern reinterpretation of a series of traditional ethical [and other] ideals embodied in our tradition. These ideals -- holding the environment in trust for future generations, respecting non-human nature, making secure the citizens' health and lives, especially vulnerable citizens, protecting nature's beauty, community sharing of renewable resources, encouragement of ecologically sensitive lifestyles -- should be the starting point for reformulating environmental policy and law. The importance of these ideals is that they carry a rich tradition, and consequently are ensconced, more or less, in American culture. For example, the rights of non-human nature is an extension of the ever-expanding circle of recognized rights. Some of these ideals already have certain institutions corresponding to them; e.g., the trust ideal has private land trust institutions and the court interpretations of the public trust doctrine. These ideals are built into the ongoing enterprise of our society.
>
> Fortunately, these ideals have been subjected to extensive analysis in the field of philosophical ethics which has fleshed out their dimensions and implications. Unfortunately, this ethical analysis has often been hermetically separated from a historical and legal study of the question of [the] history of the operation of these ideals and the ways in which these ideals are institutionalized in everyday institutions and practices.

Brooks, *supra* note 38, at 13-14 (emphasis omitted).

84. Follow-up articles should, among other things, amplify and expand the discussion and bibliography of intellectual ideas addressed in this brief account; explore reasons why some ideas influenced lawmaking while others had less impact; and, compare and contrast the dynamics of the intellectual history of modern American law with the intellectual histories of other branches of American law, such as tort law. The logical synthesis of my work would eventually culminate in a book.

1. Rachel Carson and the Idea of "Silent Spring"

Like Aldo Leopold, her intellectual forebear, Rachel Carson neither earned nor cared to earn a Ph.D. "Her forte was not original research but old-fashioned natural history, colored in every respect with something many modern ecologists have forgotten: love of nature."[85] Born in 1907, she joined the U.S. Bureau of Fisheries -- later to become the U.S. Fish and Wildlife Service -- in 1935 as a writer and editor, after earning a Master's degree in biology. As explained by Roderick Nash:

> Her first book, *Under The Sea Wind* (1941), attracted comparatively little attention, but her next, *The Sea Around Us* (1951), was a publishing sensation. It appeared on non-fiction best-seller lists for nearly two years, won a National Book Award, enjoyed translations into thirty-two foreign languages and, incidentally, provided Carson with sufficient royalty income to retire from government bureaucracy. With her new leisure she completed *The Edge of the Sea* in 1955. The marine ecology books profess no overt environmental ethic, but they testify on almost every page to the author's awe in the face of the vast community of life centered on the oceans. Carson emphasized not just well-known forms of sea life but species that humans never use and seldom see. Respect for these creatures ... suffused Carson's thought and behavior. Paul Brooks, her editor ... recalled how after examining living specimens with her microscope, Carson would conclude the day by placing them in a basket and returning them, alive, to the sea.[86]

Rachel Carson published her classic polemic, *Silent Spring*, in 1962[87] -- one year after John F. Kennedy took the oath of office as the youngest elected president in United States history. In this book, Carson attacked, on scientific and ethical levels, the widespread use of DDT and other chemical pesticides and insecticides by American agriculture. "Carson preferred to think about DDT and the like not as pesticides but as biocides -- killers of life."[88] She was well aware that the chemical poisons "seldom stopped working at a convenient or expected point in the food chain. Creatures that ate the poisoned insects sickened and died. Other forms of life became intended victims of indiscriminate sprayings. Ultimately, the insecticides infected the entire

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85. R. NASH, *supra* note 42, at 78.

86. *Id.* at 78-79. *See also* P. BROOKS, THE HOUSE OF LIFE: RACHEL CARSON AT WORK (1972); C. GARTNER, RACHEL CARSON (1983); P. STERLING, SEA AND EARTH: THE LIFE OF RACHEL CARSON (1970).

87. R. CARSON, SILENT SPRING (1962).

88. R. NASH, *supra* note 42, at 79.

ecosystem. A 'silent spring' where no birds sang was a distinct possibility. And so, Carson reasoned, was a sick human society, poisoned as an ironic side-effect of the drive to conquer and dominate nature."[89]

In the final paragraph of *Silent Spring*, Carson attacked the notion of "the control of nature" -- curiously the title of a book recently published by John McPhee.[90] The "'control of nature,'" wrote Carson, "is a phrase conceived in arrogance, borne of the Neanderthal age of biology and philosophy, when it was supposed that Nature exists for the convenience of man."[91] As a substitute idea, Carson proposed "reasonable accommodation" between the natural world and people.[92]

The ideas articulated by Rachel Carson in *Silent Spring* and fervently debated throughout the country thereafter were the direct antecedents of legal principles adopted by Congress seven years later in the National Environmental Policy Act of 1969 (NEPA).[93] Drawing directly upon Carson's insights, Congress acknowledged in NEPA's preamble that it recognized "the profound impact of man's activity on the interrelations of all components of the natural environment."[94] Likewise, in framing more specific planning principles under the statute, Congress reiterated Carson's wisdom by proposing national goals to:

- "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations,"[95]
- "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings,"[96] and
- "attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences."[97]

In addition to its obvious impact on the enactment of NEPA, it was pointed out by the United States Court of Appeals for the District of Columbia[98] that "[o]ne of the most influential publications in the eventual enactment of the [1972 amendments to the Federal Insecticide, Fungicide and Rodenticide Act] was [Rachel Carson's] *Silent Spring* which devoted considerable attention to the

89. *Id.*
90. J. MCPHEE, *supra* note 80.
91. R. CARSON, *supra* note 87, at 297.
92. *See supra* note 87.
93. National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 to 4370(b) (1988).
94. 42 U.S.C. § 4331(a) (1986).
95. 42 U.S.C. § 4331(b)(1) (1986).
96. 42 U.S.C. § 4331(b)(2) (1986).
97. 42 U.S.C. § 4331(b)(3) (1986).
98. Environmental Defense Fund v. EPA, 598 F.2d 62 (D.C. Cir. 1978).

carcinogenic nature of some heavy metals and some chlorinated hydrocarbon pesticides."[99] After the publication of Carson's book, the phrase "silent spring" became a shorthand way of expressing the unintended consequences of human manipulation of the natural environment. Several judicial opinions make this type of shorthand reference, including the United States Court of Appeals for the Second Circuit,[100] the United States Court of Appeals for the Fifth Circuit,[101] the Rhode Island Supreme Court,[102] and the United States District Court for the Southern District of Georgia.[103] Other courts cited *Silent Spring* for various scientific facts and views.[104]

2. *Garret Hardin and Kenneth Boulding: "The Tragedy of the Commons" on "Spaceship Earth"*

A second congery of intellectual ideas drawn from the field of economics has had a significant impact on the development of American environmental law in the last thirty years. Two academics, Garret Hardin and Kenneth Boulding, added intellectual ferment to environmental issues by publication of a technical article and a non-fiction book chapter, respectively. The conceptual phrases that they coined had a profound effect on environmental legal analysis.

Hardin's article, published in a 1968 issue of the journal *Science*, was entitled "The Tragedy of the Commons."[105] In elegant prose, Hardin noted that:

> The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactory for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point the inherent logic of the commons remorselessly generates tragedy.

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99. *Id.* at 72, n. 32 (citing Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 136 to 136y).

100. Morningside Renewal Council, Inc. v. United States Atomic Energy Comm'n, 482 F.2d 234 (2d Cir. 1973).

101. Zabel v. Tabb, 430 F.2d 199 (5th Cir. 1970).

102. Wood v. Picillo, 443 A.2d 1244 (R.I. 1982).

103. United States v. Lewis, 355 F. Supp. 1132 (S.D. Ga. 1973).

104. Hercules, Inc. v. EPA, 598 F.2d 91, 98 n.4 (D.C. Cir. 1978); Edwards v. Nat'l Audubon Soc'y, Inc., 556 F.2d 113 (2d Cir. 1977); United States v. Goodman, 486 F.2d 847, 850 n.12 (7th Cir. 1973); Zepeda v. Zepeda, 41 Ill. App. 2d 240, 190 N.E.2d 849 (1963).

105. Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968).

* * *

> Each man is locked into a system that compels him to increase his herd without limit in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.[106]

Hardin's article made a big impact on economists. To an economist, Hardin had provided a parable for a problem that they referred to as "market failure" or the "externality problem."[107] Externalities "occur whenever the activity of one person affects the welfare of other persons who have no direct means of control over those activities."[108] In partial response to Hardin's article, the Congress, and ultimately the EPA, took the problem of externalities more seriously. To alleviate "the tragedy of the commons," environmental regulators started to improve pollution penalties which, at a minimum, would recoup the "economic benefit" externality derived by a polluter in failing to conform to a pollution standard when other companies had internalized the cost of pollution by spending the necessary funds to abate discharges into the air and water. Indeed, Section 120 of the Clean Air Act[109] and Section 309 of the Clean Water Act[110] are the intellectual offspring of Hardin's idea for

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106. *Id.* at 1244-45.

107. *See* T. Schoenbaum, *supra* note 12, at 25.

108. *Id.*

109. 42 U.S.C. § 7420 (1988). Subsection (d)(2) provides in pertinent part that:

> The amount of the penalty which shall be assessed and collected with respect to any source under this section shall be equal to –
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> (A) The amount determined in accordance with regulations promulgated by the Administrator ... which is no less than the *economic value which a delay in compliance* beyond July 1, 1979, may have for the owner of such source, including the quarterly equivalent of the capital costs of compliance and debt service over a normal amortization period, not to exceed ten years, operation and maintenance costs foregone as a result of noncompliance, and any additional economic value which such a delay may have for the owner or operator of such source, minus
>
> (B) The amount of any expenditure made by the owner or operator of that source during any such quarter for the purpose of bringing that source into, and maintaining compliance with, such requirement, to the extent that such expenditures have not been taken into account in the calculation of the penalty under subparagraph (A).

Id. (emphasis provided).

110. 33 U.S.C. § 1319 (1988). Subsection (d) provides in pertinent part:

> Any person who violates [the permit and effluent provisions of the Clean Water Act] shall be subject to a civil penalty not to exceed $25,000 per day for each violation. In determining the amount of a civil penalty the court shall consider the seriousness of the violation or violations, *the economic benefit (if any) resulting from* the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require.

Id. (emphasis provided).

preventing "the tragedy of the commons" through coercive governmental measures to recoup economic benefit derived from legal violation of the commons. Hardin's idea has been cited with regularity by scholars[111] and the courts.[112] For example, in an action by an Oregon orchard owner to recover for damages caused by an aluminum plant's emissions, the court in *Orchard View Farms, Inc. v. Martin Marietta Aluminum*[113] observed:

> Our system of law attempts to insure that businesses are, on balance, socially beneficial by requiring that each enterprise bear its total production costs, as accurately as the costs can be ascertained. A fundamental means to this end is the institution of tort liability, which requires that persons harmed by business or other activity be compensated by the perpetrator of the damage. In the context of pollution, however, the tort system does not always operate smoothly to impose liability for compensatory damages. Among the difficulties encountered are: (1) that the harm be gradual or otherwise difficult to perceive; (2) that the cause of the harm may be difficult to trace to the pollution and from pollution to its source; and (3) that the harm may be inflicted in small amounts upon a large number of people, none of whom individually suffer sufficient damage to warrant the time and expense of legal action and whose organization into a plaintiff class is hindered by what has come to be known as the *tragedy of the commons*.[114]

Likewise, the federal appellate court in *Natural Resources Defense Council v. Costle*[115] noted that "the primary purpose of the effluent limitations and guidelines [under the Clean Water Act] was to provide uniformity among the federal and state jurisdictions enforcing the ... program and prevent the 'Tragedy of the Commons' that might result if jurisdictions can compete for industry and development by providing more liberal limitations than their neighboring states."[116]

Inspired by the space-eye view of the planet from an Apollo Moon

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111. *See generally,* F. Anderson, D. Mandelker & A. Tarlock, supra note 12, at 20-25; FINDLEY & FARBER, *supra* note 12, at 32-35; Pierce, *State Regulation of Natural Gas in a Federally Deregulated Market: The Tragedy of the Commons Revisited,* 73 CORNELL L. REV. 15 (1987); T. Schoenbaum, *supra* note 12, at 92-24.

112. *See infra* notes 113-16 and accompanying text. *See also* Northwest Central Pipeline Corp. v. State Corp. Comm'n of Kansas, 109 S. Ct. 1262 (1989) (citing Pierce, *supra* note 111 at 1269).

113. 500 F. Supp. 984 (D. Or. 1980).

114. *Id.* at 989 (emphasis added).

115. 568 F.2d 1369 (D.C. Cir. 1977).

116. *Id.* at 1378.

shot,[117] Kenneth Boulding formulated the idea of "Spaceship Earth" in a book chapter called "The Economics of the Coming Spaceship Earth" published in the volume *Environmental Quality in a Growing Economy*.[118] According to Boulding, society might place too much emphasis on maximizing wealth and consumption. Boulding wrote:

> The closed Earth of the future requires economic principles which are somewhat different from those of the open Earth of the past. For the sake of picturesqueness ... call the open economy the 'cowboy economy;' the cowboy being symbolic of the illimitable plains and also associated with reckless, exploitive, romantic, and violent behavior, which is characteristic of open societies. The closed economy of the future might similarly be called the 'spaceman' economy, in which the Earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system.... The differences between the two types of economy become most apparent in the attitude towards consumption. In the cowboy economy, consumption is regarded as a good thing and production likewise; and the success of the economy is measured by the amount of the throughput from the 'factors of production,' a part of which, at any rate, is extracted from the reservoirs of raw materials and non-economic objects, and another part of which is output into the reservoirs of pollution. By contrast, in the spaceman economy, throughput is by no means a [desirable thing] and is indeed to be regarded as something to be minimized rather than maximized.[119]

Despite the rather esoteric nature of Boulding's thinking, environmental legal scholars have incorporated his view into the case against the "efficiency criterion."[120] Moreover, at least one court in the case of *Manufacturing Chemists Association v. Costle*[121] has cited Kenneth Boulding's idea with approval in a case involving the efficacy of hazardous waste regulations.[122]

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117. T. FERRIS, SPACESHOTS: THE BEAUTY OF NATURE BEYOND EARTH 111, 141 (1984).

118. Boulding, *The Economics of the Coming Spaceship Earth* in ENVIRONMENTAL QUALITY IN A GROWING ECONOMY (H. Jarrett ed. 1971).

119. *Id.* (quoted in T. Schoenbaum, *supra* note 12, at 42).

120. *See, e.g.*, T. Schoenbaum, *supra* note 12, at 42-45.

121. 451 F. Supp. 902 (W.D. La. 1978), 455 F. Supp. 968 (W.D. La. 1978).

122. 455 F. Supp. at 981. *In dicta* prior to quoting from the Boulding chapter, the court noted:

> We do not view this decision as a victory for those who would pollute our waters with impunity...nor as a defeat for those who are fighting the worthy battle to protect our environment. No one could possibly be happy with a system which produces goods at the ultimate expense of the health and well-being of the inhabitants of our planet.
>
> 'The essential measure of the success of the economy is not production and

3. *Professor Christopher Stone & Justice William Douglas: "Should Trees Have Standing"*

A third intellectual idea drawn from the field of ethics has had a significant impact on the development of American environmental law in recent years. This basic intellectual idea posits the notion that instead of requiring human beings to assert "standing" to come before courts of law on behalf of natural objects such as trees, rocks, or river valleys, it makes sense that these natural objects should have standing in their own right.

Professor Christopher Stone of the University of Southern California Law School originated this idea in a 1972 law review article entitled "Should Trees Have Standing? -- Toward Legal Rights for Natural Objects."[123] This intellectual idea was given real-world currency by Justice William Douglas' dissenting opinion in the 1972 case of *Sierra Club v. Morton*.[124] Drawing upon Stone's insights, Justice Douglas observed that:

> The critical question of "standing" would be simplified and also put neatly in focus if we fashioned a federal rule that allowed environmental issues to be litigated before federal agencies or federal courts in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers and where injury is the subject of public outrage. Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. *See* Stone, 'Should Trees Have Standing? -- Toward Legal Rights for Natural Objects,' 45 S. CAL. L. REV. 450 (1972).
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> * * *
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> Inanimate objects are sometimes parties in litigation. A ship has a legal personality, a fiction found useful for maritime purposes. The corporation sole -- a creature of ecclesiastical law -- is an acceptable adversary and large fortunes ride on its cases. The ordinary corporation is a 'person' for purposes of the adjudicatory processes, whether it represents proprietary, spiritual, aesthetic, or charitable causes.

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consumption at all, but the nature, extent, quality and complexity of the total capital stock, including in this the state of the human bodies and minds involved in the system.' *Id.* (quoting Boulding, *supra* note 118).

123. Stone, *Should Trees Have Standing? -- Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450 (1972).

124. 405 U.S. 727 (1972) (Douglas, J. dissenting).

> So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland, or even air that feels the destructive pressures of modern technology and modern life. The river, for example, is the living symbol of all the life it sustains or nourishes -- fish, aquatic insects, water ouzels, otter, fisher, deer, elk, bear, and all other animals, including man, who are dependent on it or who enjoy it for its sight, its sound, or its life. The river as plaintiff speaks for the ecological unit of life that is part of it. Those people who have a meaningful relation to that body of water -- whether it be a fisherman, a canoeist, a zoologist, or a logger -- must be able to speak for the values which the river represents and which are threatened with destruction.[125]

Other categories of intellectual ideas having significant impact on American environmental law are as follows:

4. *Judge Harold Leventhal as Environmental Theorist: "Hardlook" Judicial Review of Agency Decisionmaking*

Prior to his appointment to the United States Court of Appeals for the District of Columbia Circuit in 1965 at the age of fifty, Harold Leventhal already had a distinguished legal career.[126] Just four years after his appointment to the bench, Judge Leventhal originated an intellectual idea that "through forcefulness of concept and simplicity of expression [was] ... as important in the evolution of the law as the specifics of the holdings that spawned it."[127] In a pair of 1969 opinions -- *Pikes Peak Broadcasting Co. v. F.C.C.*[128] and *Women Strike For Peace v. Hickel*[129] -- Judge Leventhal first

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125. *Id.* at 741-43.

126. Born in 1915, Leventhal obtained both his undergraduate and law degrees at Columbia University. After his graduation from law school and admission to the New York Bar in 1936, Leventhal clerked for U.S. Supreme Court Justice Harlan F. Stone (1936-37) and then for U.S. Supreme Court Justice Stanley Reed (1938). From 1938-39 he worked on the staff of the Office of Solicitor General; from 1939-40 he was chief of litigation of the Bituminous Coal Division of the U.S. Department of Interior; from 1940-43 he was assistant general counsel to the federal Office of Price Administration (OPA). At the end of World War II Leventhal embarked on the fascinating experience of working on the staff of Justice Robert Jackson in his role of one of the judges of the Nuremberg Trials (1945-46). Thereafter, Leventhal practiced law with the New York law firm of Ginsburg and Leventhal, until his appointment to the federal bench by President Lyndon B. Johnson in 1965. Some of his "activities" while practicing law in New York included the following: general counsel to the Democratic National Committee (1952-65); visiting lecturer at Yale Law School (1957-62). BIOGRAPHICAL DICTIONARY OF THE FEDERAL JUDICIARY 164-65 (H. Chase, S. Krislov, K. Boyum, J. Clark eds. 1976).

127. J. Bonine & T. McGarity, *supra* note 12, at 132.

128. 422 F.2d 671, 682 (D.C. Cir. 1969) (upholding agency).

129. 420 F.2d 597, 603 (D.C. Cir. 1969) (reversing agency).

stated that an agency must take a "hard look" at contentions by the litigants, or the underlying facts bearing on a particular agency decision, in review of administrative decisions. "He then labored to give the term currency in succeeding opinions that he issued, each citing his preceding ones and each putting the phrase in quotes, drawing attention to it."[130] In time, other judges on the D.C. circuit and elsewhere began using the phrase "hard look" in F.C.C. cases.[131] In 1971 Judge Leventhal expanded use of the phrase to cases involving the Federal Power Commission and the Securities and Exchange Commission (still using quotes and citing his earlier opinions).[132]

In 1972 Judge Leventhal "became the first judge in the nation to call for a 'hard look' in environmental cases."[133] He justified the need for "hard look" review in *Natural Resources Defense Council (NRDC), Inc. v. Morton*[134] and *EDF, Inc. v. EPA*.[135] These opinions had an immediate and substantial impact on judicial reasoning in cases involving interpretation of the National Environmental Policy Act.[136] In a few years, the United States Supreme Court "joined the throng" of courts that acknowledged and applied the idea of "hard look" judicial review in environmental cases by its discussion in the 1975 decision, *Aberdeen & Rockfish Railroad Co. v. Students Challenging Regulatory Agency Procedures*,[137] and the 1976 decision in *Kleppe v. Sierra Club*.[138] Later on, in the 1983 decision in *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc.*,[139] the Supreme Court referred to its *Kleppe* decision for the propriety of utilizing the "hard look" doctrine in NEPA cases.[140]

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130. J. Bonine & T. McGarity, *supra* note 12, at 133 (citing WAIT Radio v. FCC, 418 F.2d 1153, 1156 n.8, 1157, 1160 (D.C. Cir. 1969) (reversing agency) and Greater Boston Television Corp. v. FCC, 444 F.2d 841, 851 (D.C. Cir. 1970) (upholding agency)).

131. *Id.*

132. *Id.* (citing Alabama Power Co. v. FPC, 454 F.2d 716, 721 (D.C. Cir. 1971); City of Lafayette v. SEC, 450 F.2d 941, 954 (D.C. Cir. 1971)).

133. *Id.*

134. 458 F.2d 827, 838 (D.C. Cir. 1972).

135. 465 F.2d 528, 541 (D.C. Cir. 1972).

136. 42 U.S.C. § 4321 (1988).

137. 422 U.S. 289, 327 n. 28 (1975).

138. 427 U.S. 390, 410 n. 21 (1976).

139. 462 U.S. 87 (1983).

140. *But see* the Supreme Court's emphasis on the limited role of the judiciary in reviewing environmental impact statements under NEPA in *Vermont Yankee Nuclear Power Corp. v. NRDC, Inc.*, 435 U.S. 519, 558 (1978) (courts should simply "insure a fully informed and well-considered decision [by the agency]," setting aside agency decisions only for "substantial procedural or substantive reasons ..., not simply because the court is unhappy with the result reached"); Strycker's Bay Neighborhood Council v. Karlen, 444 U.S. 223, 227 (1980) (*per curiam*); Baltimore Gas & Elec. Co. v. NRDC, Inc., 462 U.S. 87 (1983).

Judge Leventhal added intellectual force to his "hard look" conception by a 1974 article in the *University of Pennsylvania Law Review* entitled *Environmental Decisionmaking and the Role of the Courts*.[141] Judge Leventhal argued that substantive review of environmental agency decisions by the judiciary was worthwhile because of "the check it could place on agency decisionmaking."[142] In this regard, he wrote:

> The common theme one can draw from these observations on the role of the courts in environmental matters is the court's central role of ensuring the principled integration and balanced assessment of both environmental and nonenvironmental considerations in federal agency decisionmaking. The rule of administrative law, as applied to the congressional mandates for a clean environment, ensures that mission-oriented agencies ... will take due cognizance of environmental matters. It ensures at the same time that environmental protection agencies will take into account the congressional mandate that environmental concern be reconciled with other social and economic objectives of our society.[143]

In addition to the ferment among fellow judges,[144] Judge Leventhal's "hard look" conception engendered important intellectual debate in the law reviews among scholars and jurists -- not only in the area of judicial review of administrative decisions,[145] but also with regard to judicial assessment of scientific evidence in general.[146]

5. *Professor Joseph Sax, Senator Edmund Muskie and the Development of Environmental Citizen Suits*

In the early 1970s "[a]s interest in environmental protection grew,

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141. Leventhal, *Environmental Decision Making and the Role of the Courts*, 122 U. PA. L. REV. 509 (1974).

142. F. Anderson, D. Mandelker & A.D. Tarlock, *supra* note 12, at 126.

143. Leventhal, *supra* note 141, at 604.

144. *See supra* notes 130-143 and accompanying text.

145. *See* Bazelon, *Coping With Technology Through the Legal Process*, 62 CORNELL L. REV. 817 (1977); Byse, *Vermont Yankee and the Evolution of Administrative Procedure: A Somewhat Different View*, 91 HARV. L. REV. 1823 (1978); Oakes, *The Judicial Role in Environmental Law*, 52 N.Y.U. L. REV. 498 (1977); Rodgers, *A Hard Look at Vermont Yankee: Environmental Law Under Close Scrutiny*, 67 GEO. L. J. 699 (1979); Siegel, *The Aftermath of* Baltimore Gas & Electric Co. v. NRDC: *A Broader Notion of Judicial Deference to Agency Expertise*, 11 HARV. ENVTL. L. REV. 331 (1987); Stewart, *Vermont Yankee and the Evolution of Administrative Procedure*, 91 HARV. L. REV. 1805 (1978).

146. *See* Brennan, *Helping Courts With Toxic Torts: Some Proposals Regarding Alternative Methods for Presenting and Assessing Scientific Evidence in Common Law Courts*, 51 U. PITT. L. REV. 1 (1989).

awareness of the lack of credible enforcement mechanisms and credible state and federal enforcement programs also increased."[147] This, in turn, spurned dissatisfaction with the prevailing environmental regulatory scheme and "led directly to the significant enhancement of federal enforcement tools in the environmental legislation of the 1970s and to the creation of citizen suits."[148]

Two individuals -- one a legal academic and the other a United States senator -- had a profound intellectual influence on the genesis of the idea of citizen environmental suits and the crafting of specific laws to implement that idea. The academic, Professor Joseph L. Sax, was a Professor of Law at the University of Michigan Law School at the time of this activity in the early seventies.[149] The senator, Edmund Muskie, was, in the early 1970s, United States Senator for Maine and Chair of the Senate Public Works' Subcommittee in charge of pollution and environmental control.[150]

Professor Sax authored and championed Michigan's environmental citizen suit provisions, passed into law in 1970.[151] As explained in his academic writings about the Michigan citizen suit provision,[152] Michigan's law gave citizens the right to enforce state environmental policies not being enforced by

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147. J. MILLER, CITIZEN SUITS: PRIVATE ENFORCEMENT OF FEDERAL POLLUTION CONTROL LAWS 3 (1987).

148. *Id.* at 3-4 (footnotes omitted).

149. Sax is now the House/Hurd Professor of Environmental Law at the University of California School of Law at Berkeley. After graduating from the University of Chicago School of Law in 1959 (and serving as editor-in-chief of the University of Chicago Law Review), Sax served as Assistant and later Associate Professor of Law at the University of Colorado School of Law (1962-65); and Professor of Law at the University of Michigan School of Law (1966-87) with visiting professorships at Berkeley (1965-66 and 1986) and the University of Paris (1982). ASSOCIATION OF AMERICAN LAW SCHOOLS, DIRECTORY OF LAW TEACHERS 702 (1988-89).

150. Senator Muskie was born in Rumford, Maine in 1914. After graduating from Cornell Law School in 1939, he commenced the practice of law in Waterville, Maine, in 1940. During the second World War he enlisted in the United States Navy and served in both the Atlantic and Asiatic-Pacific Theaters from 1942-45. After holding a series of local offices, he was elected to the Maine House of Representatives in 1946, 1948, and 1950 and was Democratic Floor Leader from 1949-51. From 1955-59, Muskie served as Governor of Maine. In 1958 he was elected as United States Senator from Maine and reelected in 1964, 1970 and 1976. In May 1980 he became U.S. Secretary of State under President Jimmy Carter. In 1987 he served on the President's Special Review Board ("Tower Commission"). He presently practices law and resides in Washington, D.C. *See*, JOINT COMMITTEE ON PRINTING, CONGRESS OF THE UNITED STATES, BIOGRAPHICAL DIRECTORY OF THE UNITED STATES CONGRESS 1774-1989 1555 (1989). *See also*, ASBELL, THE SENATE NOBODY KNOWS (1978); COHEN, ROLL CALL: ONE YEAR IN THE UNITED STATES SENATE (1981); MUSKIE, JOURNEYS (1972).

151. MICH. COMP. LAWS ANN. §§ 691.1201-691.1207 (West 1987).

152. *See* Sax and Conner, *Michigan's Environmental Protection Act of 1970: A Progress Report*, 70 MICH. L. REV. 1004 (1972); Sax and DiMento, *Environmental Citizen Suits: Three Years Experience Under the Michigan Environmental Protection Act*, 4 ECOLOGY L.Q. 1 (1974).

the executive branch of state government.[153] As a result of Michigan's example, a number of states enacted state environmental citizen suit provisions in ensuing years.[154]

Senator Muskie led congressional efforts at formulating the first federal citizen environmental enforcement provisions. These were contained in the Clean Air Act of 1970.[155] During Senate debates on this legislation on September 21, 1970, Senator Muskie noted that "state and local governments have not responded adequately [to the challenge of enforcement].... It is clear that enforcement must be toughened if we are to meet the national deadline. More tools are needed, and the federal presence and backup authority must be increased."[156]

With the intellectual spur of Professor Sax and Senator Muskie, the idea of citizen suits as a supplemental means of enforcing environmental laws was developed at the state and federal levels during the early 1970s. After passage of the Clean Air Act, statutory citizen suit provisions were included in virtually all new federal environmental statutes or major amendments to existing regulatory statutes.[157]

Citizen suits in environmental litigation have instigated considerable litigation in recent years with vigorous debate taking place among jurists and scholars about the meaning and significance of these provisions.[158]

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153. *See also* Haynes, *Michigan's Environmental Protection Act in its Sixth Year: Substantive Environmental Law from Citizen Suits* 53 J. URB. L. 589 (1976).

154. *See, e.g.*, CAL. GOV'T CODE §§ 12600 to 12612 (West 1980); CONN. GEN. STAT. ANN. §§ 22a-14 to 22a-20 (West 1985 and Supp. 1990); FLA. STAT. ANN. § 403.412 (West 1986 and Supp. 1990); IND. CODE ANN. §§ 13-6-1-1 to 13-6-1-6 (West 1990); MD. NAT. RES. CODE ANN. §§ 1-501 to 1-508 (1989); MASS. GEN. LAWS ANN. ch. 214, § 7A (West 1989); MINN. STAT. ANN. §§ 116B.01 to 116B.13 (West 1987); NEV. REV. STAT. ANN. §§ 41.540 to 41.570 (Michie 1986); N.J. STAT. ANN. §§ 2A:35A-1 to 2A:35A-14 (West 1987); S.D. CODIFIED LAWS ANN. §§ 34A-1 to 34A-15 (1986 and Supp. 1990).

155. Clean Air Act § 304, 42 U.S.C. § 7604 (1988).

156. J. Miller, *supra* note 147, at 4, n. 2 (quoting ENVIRONMENTAL POLICY DIVISION, CONGRESSIONAL RESEARCH SERVICE, A LEGISLATIVE HISTORY OF THE CLEAN AIR ACT AMENDMENTS OF 1970 at 226).

157. *See* Federal Water Pollution Control Act § 505, 33 U.S.C. § 1365 (1988); Noise Control Act § 12, 42 U.S.C. § 4911 (1988); Resource Conservation and Recovery Act § 7002, 42 U.S.C. § 6972 (1988); Safe Drinking Water Act § 1449, 42 U.S.C. § 300j-8 (1988); Toxic Substances Control Act § 20, 15 U.S.C. § 2619 (1988). The one exception is the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. §§ 135-136y (1988), which does not contain a citizen suit provision.

158. *See generally* Blomquist, *Rethinking the Citizen as Prosecutor Model of Environmental Enforcement Under the Clean Water Act: Some Overlooked Problems of Outcome-Independent Values*, 22 GA. L. REV. 337 (1988) (collecting sources).

6. *Bureaucrats as Intellectuals: Reports of the Council on Environmental Quality (CEQ) and the Office of Technology Assessment (OTA)*

Professor William H. Rodgers, Jr. has observed that American law mandates the "establishment of ... national commissions, and a host of lesser study provisions."[159] He goes on to note, however, that this penchant for study and analysis is "consistent with a theory of legislation as dynamic, ever-changing, and as tending towards the provisional solution."[160] "It is," he asserts, "as if the 'more study' outcome is the natural equilibrium point between opponents and proponents of regulation in pollution conflicts of high uncertainty."[161]

Two federal government agencies -- one in the Executive Office of the President, the other a congressional appendage for policy advice -- have had a significant impact during the last two decades in providing raw information about environmental degradation and in also generating ideas for resolving these problems. The former agency, the Council on Environmental Quality (CEQ), was established by the National Environmental Policy Act of 1969[162] to formulate and recommend national policies to promote the improvement of the quality of the environment. Additional responsibilities were provided by the Environmental Quality Improvement Act of 1970.[163] The Council consists of three members appointed by the President with the advice and consent of the Senate. CEQ's research and analytical responsibilities entail the following work:

> The Council develops and recommends to the President national policies that further environmental quality; performs a continuing analysis of changes or trends in the national environment; reviews and appraises programs of the Federal Government to determine their contribution to sound environmental policy; conducts studies, research, and analyses relating to ecological systems and environmental quality; assists the President in the preparation of the annual environmental quality report to the Congress; and oversees implementation of the National Environmental Policy Act.[164]

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159. 2 W. RODGERS, JR., *supra* note 12, at 8.

160. *Id.*

161. *Compare* Blomquist, *Beyond the EPA and OTA Reports: Toward a Comprehensive Theory and Approach to Hazardous Waste Reduction in America,* 18 ENVTL. L. 817, 822-30 (1988) (discussing the dynamics of "policymaking by study reports" under the Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 98 Stat. 3221 (1984)).

162. 42 U.S.C. §§ 4321, 4331-4335, 4341-4347 (1988).

163. 42 U.S.C. §§ 4371-4375 (1988).

164. OFFICE OF THE FEDERAL REGISTER, NATIONAL ARCHIVES AND RECORDS ADMINISTRATION, THE UNITED STATES GOVERNMENT MANUAL 1989/90 96 (1989).

While CEQ has provided a plethora of good environmental analysis in the twenty years of its existence,[165] three categories of studies contain pathbreaking conceptual analyses of environmental problems and are worthy of special note as truly intellectual sources. The first category consists of two outstanding environmental quality reports: *The Tenth Annual Report*,[166] published in 1979; and *The Twentieth Annual Report*, released in 1990.[167] In a prologue and twelve substantive chapters[168] joined with several special appendices, the *1979 Report* went beyond past annual reports to provide a synoptic view of the record of environmental progress during the decade of the 1970s. Quite properly, CEQ compared the flurry of new environmental legislation during the decade to other legal watersheds in American history. As noted in the *1979 Report*:

> In 1970, Congress began to enact a body of legislation which by the end of the decade would have a major impact on people's lives and the nation's way of doing business, possibly comparable with such earlier political changes as the New Deal in the 1930s, or the civil rights reforms of the 1950s and 1960s.[169]

Indeed, the *1979 Report* provided one of the first clear intellectual links between the "environmentalism" of the seventies and America's nineteenth century conservation movement and municipal concern for air and water pollution in the first few decades of the twentieth century. The CEQ characterized the similarity as constituting pursuit of "a new direction."[170] In particular, with a parting reference to Rachel Carson, CEQ concluded:

> That is not to say that no choking exhaust will ever again leave a tailpipe, that no worker will ever again breathe in a cancer-causing chemical, that no endangered plant or animal will ever be in jeopardy, that no pristine or unique wilderness area will ever be despoiled or that global resources, even the planet's atmosphere, will be proof against degradation from the actions of billions of humans. There is an immense amount to be done on these and many other environmental issues. And as the needs and goals of the nation change over the

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165. From 1970 to 1990, CEQ issued twenty annual reports on environmental quality and occasional technical reports.

166. U.S. COUNCIL ON ENVIRONMENTAL QUALITY, TENTH ANNUAL REPORT (1979).

167. U.S. COUNCIL ON ENVIRONMENTAL QUALITY, TWENTIETH ANNUAL REPORT (1990).

168. The prologue is entitled *An Environmental Decade*. The twelve substantive chapters address the following: air quality, water quality, toxic substances and environmental health, municipal solid waste, energy, natural resources, coastal ecology and shellfish, human settlement and land use, noise, NEPA, the global environment, and economics.

169. 1979 CEQ REPORT, *supra* note 166, at 1.

170. *Id.* at 1-15 (prologue).

coming decades, no doubt new environmental problems and issues will arise and have to be faced.

What has changed in an important way is the nation's method of going about its business. Embedded not just in the law, but in the nation's consciousness, is now the belief that no new project should be undertaken without first seriously considering its effect on the ecosystem of which we are all a part.***

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Rachel Carson in 1962 prefaced *Silent Spring* with the following statement by Albert Schweitzer: 'Man has lost the capacity to foresee and to forestall. He will end by destroying the earth.' In the early 1960s, for people thinking and writing about environmental problems, there was considerable agreement with this pessimistic view. But since then, much has in fact changed. The commitment to environmental progress has been made, and seems to be here to stay. While there is still much to learn, understand, and work out before the nation achieves and maintains a healthful, livable environment that can sustain people for centuries, we have embarked upon that journey.[171]

Although the quality of CEQ annual reports languished during the administration of Ronald Reagan,[172] CEQ redeemed its past reputation with publication of the *1990 Report*.[173] In an elegant report, suffused with an accumulation of data and experience over twenty years, CEQ emphasizes the "historical perspective" in all eight substantive chapters in the report.[174] In commenting on two particularly important historical trends in environmental law and policy from 1970 to 1990, CEQ observes:

Unlike 1970 environmental pollution today is considered not only harmful and irresponsible, but -- in many instances -- *criminal* as well. Environmental laws are enforced now at every level of government, by a number of federal, state, and local agencies, and with a much-expanded array of tools. Although violation of environmental laws continue to present problems, law enforcement officials today are much better equipped to address them.

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171. *Id.*

172. J. Lash, K. Gillman, and D. Sheridan, *supra* note 51.

173. *See supra* notes 166 to 167 and accompanying text.

174. The eight substantive chapters are as follows: Twenty Years of Change, The National Environmental Policy Act, Environmental Data and Trends, Environmental Science and Technology, Environmental Enforcement, Pollution Prevention, International Issues, and The Great Lakes.

> One of the most fundamental changes that has occurred over the past 20 years is the response of American businesses to their environmental responsibilities. Many corporations today are interested not simply in their legal responsibilities to control pollution before it escapes to the environment, but in the broad corporate benefits that attend efforts to reduce pollution at its source. Widespread efforts to redesign manufacturing processes, substitute less harmful production materials, and recycle wastes are beginning to play a major role in protecting the environment.[175]

Closely related to CEQ's annual reports is the second category of significant intellectual projects it has undertaken in the last twenty years: preparation of an original national environmental database in its 1981 publication, *Environmental Trends*,[176] and updating of that database in 1989.[177] In its initial trend report, the CEQ broached the idea that there was no "single index of environmental quality, and environmental GNP."[178] Indeed, the CEQ "found that no single measure and no single index could tell ... in a meaningful and valid way what the state of the environment was and whether or not it was improving."[179] Alternatively, CEQ sought to "sort out the useful [environmental information] from the less useful and bring together the most important and informative data on environmental conditions and trends that could be found."[180] Based on criteria of relevancy, selectivity, availability, statistical quality, and scope of coverage the authors of the *1981 Environmental Trends* presented hundreds of graphs and tables on environmental indicators in thirteen areas: people and the land; critical areas; human settlements; transportation; material use and solid waste; toxic substances; croplands, forests and rangeland; wildlife; energy; water resources; water quality; air quality; and the biosphere.[181]

Building on the original data compilation, CEQ refined and improved the database in its *1989 Environmental Trends*.[182] The *1989 Environmental Trends* report sets forth environmental information in 367 graphics and condenses the material into nine chapters: minerals and energy; water; imate and air quality; land resources; wetlands and wildlife; protected areas; population; transportation; and environmental risks and hazards. The changes in data format

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175. 1990 CEQ REPORT, *supra* note 167, at 12-13.
176. U.S. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL TRENDS (1981).
177. U.S. COUNCIL ON ENVIRONMENTAL QUALITY, ENVIRONMENTAL TRENDS (1989).
178. 1981 ENVIRONMENTAL TRENDS, *supra* note 176, at iv.
179. *Id.*
180. *Id.*
181. *Id.* at iii (table of contents).
182. 1989 ENVIRONMENTAL TRENDS, *supra* note 177.

and compilation were undertaken by CEQ so that the following key conceptual questions could be addressed by policymakers and citizens:

> Are environmental conditions getting better or worse? What aspects of the environment are most improved, most degraded? Where do environmental conditions pose a health hazard? Are the data monitored sufficiently to give confidence in making accurate assessments? Have environmental legislation and programs resulted in any measurable improvements? In what areas is change most noticeable?[183]

Finally, CEQ's collaboration with the U.S. Department of State in producing the *Global 2000 Report to the President* -- briefly discussed above[184] -- was an outstanding intellectual contribution to the development of American environmental law in the last thirty years. Its primary importance lies in conceptually *internationalizing* environmental problems in a comprehensive and analytical way. After the *Global 2000 Report*, experts might disagree as to the specific transnational impacts of environmental problems but they would find it hard to argue against the idea of international environmental problems and the need for international environmental law in resolving these problems.

The Congressional Office of Technology Assessment (OTA) was created by the Technology Assessment Act of 1972[185] to serve Congress by providing objective analyses of major public policy issues relating to scientific and technological change. The OTA began operations in January 1974.

Although the OTA has a somewhat cumbersome organizational structure,[186] the comprehensive reports prepared by its staff over the years

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183. *Id.* at vii.

184. *See supra* notes 70 to 71 and accompanying text.

185. 2 U.S.C. § 472 (1986).

186. OTA's Enabling Act, 2 U.S.C. §§ 472, 475, 476 (1988) specifies that it shall consist of a Technology Assessment Board, a Director, a Technology Advisory Council, and such other employees and consultants as may be necessary in the conduct of OTA's work.

> The bipartisan 13-member Board includes six Senators appointed by the President pro tempore, six members of the House of Representatives appointed by the Speaker, and the Director of OTA, who is a non-voting member. The Board selects a Chairman and a Vice Chairman from among its members at the beginning of each Congress. The Chairmanship and Vice Chairmanship alternate between the Senate and the House of Representatives with each Congress. The Director is appointed by the Board and serves a 6-year term. Their Director has full authority and responsibility for organizing and managing OTA's resources according to policies set by the Board.
>
> The Technology Assessment Advisory Council comprises 10 public members eminent in science and technology. The Council is appointed by the Board and advises the Board and OTA on assessments and other matters. The Comptroller General of the

have synthesized important environmental and technical research while providing new ideas and new paradigms for addressing environmental issues. OTA has tended to focus its assessments on the area of hazardous, toxic, or radioactive wastes, publishing several reports in this area in the last decade.[187] Two of these reports, *Serious Reduction of Hazardous Waste*, published in 1986[188] and *Coming Clean: Superfund Problems Can Be Solved*,[189] published in 1989 have had a profound impact on changing national environmental policy. The former report articulated and refined a vision of "waste reduction" over "waste treatment" while "urging primacy of waste reduction over waste treatment, and focusing on careful definition of terms."[190]

The latter report, *Coming Clean*,[191] led the EPA to "tighten oversight of Superfund cleanups by requiring federal or state officials to conduct health risk studies because private companies may be underestimating the threats to

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United States and the Director of the Congressional Research Service of the Library of Congress are also members.

The office's assessments explore complex issues involving science and technology, helping Congress resolve uncertainties and conflicting claims, identifying alternative policy options, and providing foresight or early alert to new developments that could have important implications for future Federal policy. Requests for assessments may be made by the chairman of any congressional committee acting for himself or on behalf of a ranking minority member, or a majority of committee members; by the OTA Board; or by the OTA Director, in consultation with the Board.

The office's work centers on comprehensive assessments that may take 1 to 2 years to complete. It also draws upon its past and current work to provide a variety of responses to meet immediate congressional needs, such as briefings, testimony and special reports.

U.S. GOVERNMENT MANUAL, *supra* note 164, at 61.

187. *See, e.g.*, U.S. OFFICE OF TECHNOLOGY ASSESSMENT, COMING CLEAN: SUPERFUND PROBLEMS CAN BE SOLVED (1989); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, FROM POLLUTION TO PREVENTION: A PROGRESS REPORT ON WASTE REDUCTION (1987); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, MANAGING THE NATION'S COMMERCIAL HIGH-LEVEL RADIOACTIVE WASTE (1985); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, NEUROTOXICITY: IDENTIFYING AND CONTROLLING POISONS OF THE NERVOUS SYSTEM (1990); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, OCEAN INCINERATION: ITS ROLE IN MANAGING HAZARDOUS WASTE (1986); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, PARTNERSHIPS UNDER PRESSURE: MANAGING COMMERCIAL LOW-LEVEL RADIOACTIVE WASTE (1989); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, SERIOUS REDUCTION OF HAZARDOUS WASTE: FOR POLLUTION PREVENTION AND INDUSTRIAL EFFICIENCY (1986); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, SUPERFUND STRATEGY (1985); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, TECHNOLOGIES AND MANAGEMENT STRATEGIES FOR HAZARDOUS WASTE CONTROL (1983); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, TRANSPORTATION OF HAZARDOUS MATERIALS (1986); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, WASTES IN MARINE ENVIRONMENTS (1987).

188. *See* SERIOUS REDUCTION, *supra* note 187. This report was followed by the rebuttal report, FROM POLLUTION TO PREVENTION, *supra* note 187, published in 1987.

189. *See* COMING CLEAN, *supra* note 187.

190. Blomquist, *supra* note 161, at 867.

191. COMING CLEAN, *supra* note 187.

residents near the sites."[192] Indeed, OTA's 1989 report argued that "the government should do all the studies and design plans for Superfund cleanups and limit responsible parties to doing only the actual cleanup work."[193]

7. *Prime Minister Gro Brundtland and the Report of the World Commission on Environment and Development*

Prior to becoming Prime Minister of Norway in 1981, Mrs. Gro Harlem Brundtland had served as Norway's Minister of Environment from 1974-79 and a member of the Norway Parliament from 1977.[194] Relating her personal reaction to the Secretary-General of the United Nations' request in December 1983 for her to "establish and chair a special, independent commission to address"[195] world environmental problems, Brundtland acknowledged that she "was acutely aware that this was no small task and obligation."[196] But she went on to muse:

> What the general assembly asked for ... seemed to be unrealistic and much too ambitious. At the same time, it was a clear demonstration of the widespread feeling of frustration and inadequacy in the international community about our own ability to address the vital global issues and deal effectively with them.
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> All this was on my mind when the Secretary-General presented me with an argument to which there was no convincing rebuttal: No other political leader had become Prime Minister with a background of several years of political struggle, nationally and internationally, as an environment minister. This gave some hope that the environment was not destined to remain a side issue in central, political decisionmaking.[197]

It is interesting that Prime Minister Brundtland compared her task to the "formula[tion] [of] a third and compelling [international] call for political action:

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192. 21 *Env't Rep.* (BNA) 414-15 (June 29, 1990).

193. *Id.*

194. WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, OUR COMMON FUTURE 353 (1987) [hereinafter OUR COMMON FUTURE].

195. *Id.* at ix.

196. *Id.*

197. *Id.* at ix-x.

After Brandt's *Programme for Survival* and *Common Crisis*, and after Palme's *Common Security*."[198]

After beginning her work in 1983, Brundtland named the other Commissioners.[199] At its inaugural meeting in October 1984, the Commission selected eight key issues for analysis during the course of its work:

- Perspectives on Population, Environment and Sustainable Development;
- Energy: Environment and Development;
- Industry: Environment and Development;
- Food Security, Agriculture, Forestry, Environment, and Development;
- Human Settlements: Environment and Development;
- International Economic Relations, Environment and Development;
- Decision Support Systems for Environmental Management; and
- International Cooperation.[200]

Resolving to "receiv[e] the broadest range of views and advice on the key issues it was addressing,"[201] the Commission "decided that it would hold deliberative meetings in all regions of the world and that it would take the occasion of those meetings to get a first-hand view of environment and development issues in those regions."[202] These views were incorporated into the final text of *Our Common Future* with the assistance of staff, experts, and advisory panels.

Drawing on past intellectual concepts of "Spaceship Earth,"[203] and sustainable development,[204] the report articulated a new international environmental construct: "From one earth to one world."[205] This construct is composed of "six priority areas": (1) "getting at sources" to "make the key national, economic, and sectorial agencies directly responsible and accountable for ensuring that their policies ... support development that is economically and

198. *Id.* at x.

199. The Commission consisted of 23 members. This included the United States' representative, William Ruckelshaus, former Administrator of the EPA. *See* OUR COMMON FUTURE, *supra* note 195, at 353-56 (listing members).

200. *Id.* at 358.

201. *Id.* at 359.

202. *Id.*

203. *See supra* notes 117 to 122 and accompanying text.

204. *See supra* note 73 and accompanying text.

205. OUR COMMON FUTURE, *supra* note 195, at 1-23.

ecologically sustainable;"[206] (2) "dealing with the effects" by having governments "reinforce the roles and capacities of environmental protection and resource management agencies;"[207] (3) "assessing global risks" by improving "[t]he capacity to identify, assess, and report on risks of irreversible damage to natural systems and threats to the survival, security, and well-being of the world community;"[208] (4) "making informed choices" by encouraging "widespread support and involvement of an informed public and of non-governmental organizations, the scientific community, and industry;"[209] (5) "providing the legal means" to fill "major gaps in existing national and international law related to the environment, to find ways to recognize and protect the rights of present and future generations to an environment adequate for their health and well-being, [and] to prepare under UN auspices a universal Declaration on environmental protection and sustainable development;"[210] and (6) "investing in our future" by World Bank lending practices that focus on "renewable energy development, pollution control, and achieving less resource-intensive forms of agriculture."[211]

The six priority areas are addressed in twenty-two "proposed legal principles" for environmental protection and sustainable development" adopted by the Commission.[212]

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206. *Id.* at 20.
207. *Id.*
208. *Id.*
209. OUR COMMON FUTURE, *supra* note 195, at 21.
210. *Id.*
211. *Id.*
212. *Id.* at 348-51.

I. GENERAL PRINCIPLES, RIGHTS, AND RESPONSIBILITIES

Fundamental Human Right

1. All human beings have the fundamental right to an environment adequate for their health and well-being.

Inter-Generational Equity

2. States shall conserve and use the environment and natural resources for the benefit of present and future generations.

Conservation and Sustainable Use

3. States shall maintain ecosystems and ecological processes essential for the functioning of the biosphere, shall preserve biological diversity, and shall observe the principle of optimum sustainable yield in the use of living natural resources and ecosystems.

Environmental Standards and Monitoring

4. States shall establish adequate environmental protection standards and monitor changes in and publish relevant data on environmental quality and resource use.

Prior Environmental Assessments

5. States shall make or require prior environmental assessments of proposed activities which may significantly affect the environment or use of a natural resource.

Prior Notification, Access, and Due Process

6. States shall inform in a timely manner all persons likely to be significantly affected by a planned activity and to grant them equal access and due process in administrative and judicial proceedings.

Sustainable Development and Assistance

7. States shall ensure that conservation is treated as an integral part of the planning and implementation of development activities and provide assistance to other States, especially to developing countries, in support of environmental protection and sustainable development.

General Obligation to Co-operate

8. States shall co-operate in good faith with other States in implementing the preceding rights and obligations.

II. PRINCIPLES, RIGHTS, AND OBLIGATIONS CONCERNING TRANSBOUNDARY NATURAL RESOURCES AND ENVIRONMENTAL INTERFERENCES

Reasonable and Equitable Use

9. States shall use transboundary natural resources in a reasonable and equitable manner.

Prevention and Abatement

10. States shall prevent or abate any transboundary environmental interference which could cause or causes significant harm (but subject to certain exceptions provided for in Art. 11 and Art. 12 below).

Strict Liability

11. States shall take all reasonable precautionary measures to limit the risk when carrying out or permitting certain dangerous but beneficial activities and shall ensure that compensation is provided should substantial transboundary harm occur even when the activities were not known to be harmful at the time they were undertaken.

Prior Agreements When Prevention Costs Greatly Exceed Harm

12. States shall enter into negotiations with the affected State on the equitable conditions under which the activity could be carried out when planning to carry out or permit activities causing transboundary harm which is substantial but far less than the cost of prevention. (If no agreement can be reached, see Art. 22.)

Non-Discrimination

13. States shall apply as a minimum at least the same standards for environmental conduct and impacts regarding transboundary natural resource and environmental interferences as are applied domestically (i.e., do not do to others what you would not do to your own citizens).

General Obligation to Co-operate on Transboundary Environmental Problems

14. States shall co-operate in good faith with other States to achieve optimal use of transboundary natural resources and effective prevention or abatement of transboundary environmental interferences.

Exchange of Information

15. States of origin shall provide timely and relevant information to the other concerned States regarding transboundary natural resources or environmental interferences.

Prior Assessment and Notification

16. States shall provide prior and timely notification and relevant information to the other concerned States and shall make or require an environmental assessment of planned activities which may have significant transboundary effects.

While it is probably premature to assess the intellectual impact of *Our Common Future*, it is reasonable to assume that the report will have a substantial impact on federal legislation considered by the United States Congress on international legal issues such as ozone depletion, global warming, and transboundary export of hazardous waste.

8. *Environmental Groups and Development of the Valdez Principles*

On March 24, 1989, the Exxon Valdez spilled 10.92 million gallons of crude oil into Prince William Sound, after running aground.[213] While cleanup operations were underway during the summer and autumn of 1989, a group of environmentalists, money managers, and other social activists drafted a set of ten corporate management guidelines, which they called the "Valdez Principles." "The drafters, the Coalition for Environmentally Responsible Economies (CERES), called on companies to adopt these principles, suggesting that their implementation would help consumers, shareholders, and the general public to

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Prior Consultations

17. States of origin shall consult at an early stage and in good faith with other concerned States regarding existing or potential transboundary interferences with their use of a natural resource or the environment.

Co-operative Arrangements for Environmental Assessment and Protection

18. States shall co-operate with the concerned States in monitoring, scientific research and standard setting regarding transboundary natural resources and environmental interferences.

Emergency Situations

19. States shall develop contingency plans regarding emergency situations likely to cause transboundary environmental interferences and shall promptly warn, provide relevant information to and co-operate with concerned States when emergencies occur.

Equal Access and Treatment

20. States shall grant equal access, due process and equal treatment in administrative and judicial proceedings to all persons who are or may be affected by transboundary interferences with their use of a natural resource or the environment.

III. STATE RESPONSIBILITY

21. States shall cease activities which breach an international obligation regarding the environment and provide compensation for the harm caused.

IV. PEACEFUL SETTLEMENT OF DISPUTES

22. States shall settle environmental disputes by peaceful means. If mutual agreement on a solution or on other dispute settlement arrangements is not reached within 18 months, the dispute shall be submitted to conciliation and, if unresolved, thereafter to arbitration or judicial settlement at the request of any of the concerned States.

Id. at 348-51.

213. Note, *The Valdez Principles: A Corporate Self-Governance Code on Environmental Conduct*, 2 GEO. INT'L ENVTL L. REV. 237 (1989).

determine which companies are environmentally responsible and which placed the environment at risk."[214]

The Social Investment Forum, a national trade group of money managers, brokers, bankers, analysts and other social investors combined forces with leading national environmental groups, including the Sierra Club and the National Audubon Society to form CERES. "Based on the Sullivan Principles, which are intended to guide business decisions in South Africa in an attempt to end apartheid, the Valdez Principles are intended to focus the pressure of socially-conscious investors in order to improve the environmental conduct of publicly owned corporations."[215]

While CERES first issued the Valdez Principles in September 1989, the group has been at work during the ensuing months "on guidance to articulate the underlying concepts and expectations behind the Principles."[216] The present version of the ten Valdez Principles state the following:

1. Protection of the Biosphere
   We will minimize and strive to eliminate the release of any pollutant that may cause environmental damage to the air, water, or earth or its inhabitants. We will safeguard habitats in rivers, lakes, wetlands, coastal zones and oceans and will minimize contributing to the greenhouse affect, depletion of the ozone layer, acid rain, or smog.
2. Sustainable Use of Natural Resources
   We will make sustainable use of renewable natural resources, such as water, soils and forests. We will conserve nonrenewable natural resources through efficient use and careful planning. We will protect wildlife habitat, open spaces and wilderness, while preserving biodiversity.
3. Reduction and Disposal of Waste
   We will minimize the creation of waste, especially hazardous waste, and wherever possible recycle materials. We will dispose of all wastes through safe and responsible methods.
4. Wise Use of Energy
   We will make every effort to use environmentally safe and sustainable energy sources to meet our needs. We will invest in improved energy efficiency and conservation in our

214. Point-Counterpoint, *Can the Valdez Principles Green Corporate America?*, ENVTL FORUM 30 (March/April 1990) [hereinafter *Envtl Forum*]. CERES is the name of the Roman goddess for Mother Earth.

215. *Id.*

216. *Id.*

operations. We will maximize the energy efficiency of products we produce or sell.

5. Risk Reduction
We will minimize the environmental, health and safety risks to our employees and the communities in which we operate by employing safe technologies and operating procedures and by being constantly prepared for emergencies.
6. Marketing of Safe Products and Services
We will sell products or services that minimize adverse environmental impacts and that are safe as consumers commonly use them. We will inform consumers of the environmental impacts of our products or services.
7. Damage Compensation
We will take responsibility for any harm we cause to the environment by making every effort to fully restore the environment and to compensate those persons who are adversely affected.
8. Disclosure
We will disclose to our employees and to the public incidents relating to our operations that cause environmental harm or pose health or safety hazards. We will disclose potential environmental, health or safety hazards posed by our operations, and we will not take any action against employees who report any condition that creates a danger to the environment or poses health and safety hazards.
9. Environmental Directors and Managers
At least one member of the Board of Directors will be a person qualified to represent environmental interest. We will commit management resources to implement these Principles, including the funding of an office of vice-president for environmental affairs or an equivalent executive position, reporting directly to the CEO, to monitor and report upon our implementation efforts.
10. Assessment and Annual Audit
We will conduct and make public an annual self-evaluation of our progress in implementing these Principles and in complying with all applicable laws and regulations throughout our worldwide operations. We will work toward the timely creation of independent environmental audit procedures which we will complete annually and make available to the public.[217]

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217. *Id.* at 35.

The Valdez Principles have, already, engendered much public debate and discourse. On the one hand, some commentators argue that the Principles "may prove to be a sophisticated public relations mechanism by which companies can indicate to both investors and shareholders that they are environmentally responsible."[218] Non-complying businesses, according to this line of argument, would risk public scorn and disinvestment.[219] Indeed, the notion of environmentally responsible corporations -- the root idea of the Valdez Principles -- has already been endorsed by a number of corporate executives including the chief executive officers of DuPont and Monsanto.[220] Moreover,

> [o]ther companies are moving in new directions as well. Proctor and Gamble now boasts of using some recycled paper in 70 percent of its product packaging, and its Tide, Cheer, and Downy bottles are now being manufactured from recycled plastics. Kodak has recently announced it would begin recycling its Fling, Stretch, and Weekend disposable cameras, which have been cited as among the worst examples of overpackaged and non-recyclable consumer products. 3M Company has decided to beat the 1998 federal deadline to replace or improve underground storage tanks for liquids and gases, aiming to have all tanks worldwide in compliance five years early by 1993, at a cost of $80 million.[221]

On the other hand, some observers criticize the fact that "CERES completed the Principles without any discussion with industry representatives and has indicated that it will not consider changing them."[222] Likewise, some contend that the Principles are too blunt of a concept: that "they fail to articulate terms that would distinguish truly progressive companies from those that are still recalcitrant in protecting human health and the environment."[223]

The intellectual momentum of the Valdez Principles, however, has increased in recent months. Some thoughtful American legal observers have been inspired to recommend extension or amplification of the Principles by providing such interesting legal changes as the following: "a new defense to civil or criminal antitrust actions for corporations which attempt to develop a voluntary agreement for adherence to the Valdez Principles within a specific

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218. *The Valdez Principles, supra* note 214, at 240-41. *See also* Feder, *Who Will Subscribe to the Valdez Principles?*, N.Y. Times, September 10, 1989, § 3, at 6, col. 1.

219. *The Valdez Principles, supra* note 214, at 241.

220. Doyle, *Protecting Planet and Portfolio,* in ENVTL FORUM, *supra* note 215, at 32.

221. *Id.*

222. Friedman, *Don't Sign the Valdez Principles,* in ENVTL FORUM, *supra* note 215, at 32.

223. *Id.*

industry;"[224] requiring that "all [government] contractors receiving federal funds adhere to the Valdez Principles;"[225] "[r]equiring the determination of adherence or non-adherence to the Valdez Principles to be included in a[n] [Environmental Impact Statement]"[226] or, "incorporating adherence to the Valdez Principles in the Federal Acquisition Regulation (FAR)" dealing with federal acquisitions of products and services.[227]

V. CONCLUSION

An intellectual-historical approach to American environmental law holds considerable promise for three reasons. First, it seeks to identify the rich assortment of ideas, conceptions, and paradigms of intellectual elites including scholars, judges, statespersons, expert government officials, and national environmental leaders. Second, it seeks to assess the real world impact of intellectual ideas on lawmaking -- whether by case law, statute, contractual pledge, agency policy, proposed bill, or scholarly proposal, the idea or ideas have been translated into some legal principle. Third, where appropriate, the flux, or change, of original ideas in response to lawmaking (like a tennis ball bouncing over a net) can be usefully studied and evaluated.

Unfortunately, the prevailing American environmental legal regime, as pointed out by Professor Richard Brooks of Vermont Law School, usually fails to pursue the "big picture"; to think in terms of overarching ideas and conceptions and how the law can use and assimilate these ideas and concepts. But, to assume that all environmental lawmaking in America is the by-product of shallow, uninformed, raw political interaction and compromise is to overstate the case. The intellect as well as the pocketbook plays a part in the continuing evolution of environmental law in this country.

In closing, let me note that while I believe that an intellectual historical approach to American environmental law holds great promise, in the final analysis it, too, is insufficient for complete understanding. Perhaps the poetry of the farmer, Wendell Barry, best expresses this truth:

> And the world cannot be discovered by a journey of miles, no matter how long, but only by a spiritual journey, a journey of one inch, very

224. *The Valdez Principles, supra* note 214, at 245.
225. *Id.*
226. *Id.*
227. *Id.* at 245-46 (footnote omitted).

> arduous and humbling and joyful, by which we arrive at the ground at our feet, and learn to be at home.[228]

Only when we learn to truly be "at home" on this planet -- in sustainable balance with other life forms and natural forces -- will we truly fulfill the ultimate purpose of environmental law: to live together in productive harmony.

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228. Barry, *The Unforeseen Wilderness,* in THE EARTH SPEAKS (S. Van Matre and B. Weiler eds. 1983).