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A Comment on Meyers' *Introduction to Environmental Thought*

A. DAN TARLOCK*

INTRODUCTION

Prior to the Second Circuit's landmark decision in *Scenic Hudson Preservation Conference v. FPC*, the concept of protection of "environmental values" had almost no legal meaning. Injury to an abstraction labeled the "environment" or, in an attempt to appear more scientific, an "ecosystem" was an unrecognized category of legal harm. Activities which interfere with the productive use of a natural resource have, of course, long been subject to liability. Since *Scenic Hudson*, there has been an astonishing judicial and legislative recognition of environmental values. Airsheds and water bodies are protected from the discharge of residuals and chemical pesticides by legislation and regulations which may rival the Internal Revenue Code in complexity. Under the spur of the courts and the National Environmental Policy Act of 1969, all federal agencies have been forced to consider environmental values in

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1. 354 F.2d 608 (2d Cir. 1965), cert. denied, 384 U.S. 941 (1966). The court reversed the Federal Power Commission's award of a license for a pumped storage facility and remanded for further proceedings on the grounds the Commission had failed to consider adequately the environmental impact of the project.


3. Courts have sometimes awarded damages and injunctive relief when an activity has impaired another person's ability to continue to enjoy a legally protected productive use of a resource, *e.g.,* Columbia River Fishermen's Protective Union v. City of St. Helens, 160 Ore. 654, 87 P.2d 195 (1939); and the doctrines of nuisance, trespass, and strict liability have long allowed property owners relief against activities which interfered with the use and enjoyment of their land. However, the alleged injuries in many important environmental lawsuits go beyond allegations that an activity impairs or threatens to impair a human use of a resource, as the concept of use has traditionally been understood. Many of these suits, reflecting recent legislation, are concerned with activities which pose unquantifiable risks because of ecosystem modification. Sometimes, but not always, the necessity to prevent or at least minimize the risk of future modification or change is linked to human uses of the resource, but the beneficiaries of the risk prevention are often identified as future generations rather than foreseeable users. Some have recently argued that the allegation that future generations must be protected is a fiction and that the real function of the creation of environmental rights is to protect natural systems per se. *See C. Stone, SHOULD TREES HAVE STANDING?* (1974). For an earlier argument reaching the same conclusions through Chinese thought see Morris, *The Rights and Duties of Beasts and Trees: A Law Teacher's Essay for Landscape Architects,* 17 J. LEGAL ED. 185 (1964).
situations ranging from the construction of large public works to the approval of a freight rate. Many states are now enacting little NEPA's and similar statutes. In brief, environmental impact is now a dimension that must be considered in most resource use conflicts at all levels of government. Yet despite hundreds of recent decisions, new statutes and regulations, there is little consensus as to the content of the environmental values which are being protected and on the weight which they should be given vis-à-vis other competing values such as economic development. This is not surprising, since environmental law has developed in the best traditions of the common law: A sued B because A did not like what B was doing. Scenic Hudson perfectly illustrates this and is the paradigm environmental law suit: a group of elite environmental groups sued a utility, by contesting an FPC license, to prevent construction of a pumped water storage plant on the Hudson River on the grounds it would mar the scenic beauty of a unique natural area and disrupt an ecosystem.

The genius of the common law is that the content of protected interests can never be precisely defined because the range of interests is always in the process of evolution. However, the necessity to define more precisely the content of what is being protected under the labels "environment" or "environmental values" is now apparent as the recognition of these values becomes increasingly widespread and these values come more sharply into conflict with other societal values. In the past ten years most environmental law suits have sought to establish the principle that public and, to a lesser extent, private decisionmakers should take, in Judge Leventhal's phrase, "a hard look" at the environmental implications of an activity or decision. This was necessary because environmental values were often ignored or given insufficient weight, but NEPA and other statutes as well as a "common law" of judicial review of administrative action now require that environmental information be displayed and considered in a wide range of situations. Federal appellate courts have been slowly construing NEPA to impose an appellate model on decisionmaking. Not only have agencies been required to produce information to support their activities, they have

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6 Judge Leventhal has described the function of judicial review of impact statements as "close judicial scrutiny . . . to see that it fully discloses and analyzes the environmental impacts of the proposed action; that it lays bare alternatives to the proposed action . . . ; and more generally, in the vernacular, that it all hangs together and makes elementary good sense." Id. at 525.
been required to justify the choices they make by a showing that a wide range of information and alternatives were systematically considered. To date, NEPA has been construed primarily as mandating new processes of decision since it does not assign relative weights to environmental values, and thus courts have been reluctant to invalidate decisions which involve a choice between environmental and other values so long as the choice was made in good faith. In short, a choice is valid so long as it is accompanied by sufficient anguish. To lawyers and judges a commitment to a restructured process is in theory a commitment to rationality in the abstract. A choice is good because of the way it is made rather than the resource use preferences it represents. However, as is well known, this is too simplistic a view of the force of process and its relation to the development of new substantive rules. At the heart of environmental controversies is a struggle for power, and processes are used to effectuate transfers of power. Much environmental litigation and legislation seeks to supplant this country's existing philosophies of resource use—exploitation spread over a fairly limited time horizon to balance the present against the future valuation of the resources—with a new and profoundly radical set of first principles, rather than simply to elevate environmental values to equal dignity with developmental ones.

A commitment to a process, such as environmental impact assessment, which requires that more substantial reasons be given for decisions than were previously required, is inevitably a commitment to the recognition of new substantive values. The decision to require reasons requires the decisionmaker to distinguish among relevant and irrelevant explanations, and eventually, in a very uneven fashion, previous justifications are rejected as untenable.

The issue the legal system must now resolve is the weight which should be given to environmental considerations, and to answer this some understanding of the philosophical arguments which form the basis for the current recognition of environmental values as a legitimate source of legal rights is necessary. Following Roscoe Pound's theory that the law does not create but recognizes interests, Professor Charles

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7 See Environmental Defense Fund, Inc. v. Corps of Engineers, 492 F.2d 1123 (5th Cir. 1974) (NEPA does not require the agency to articulate a scheme of values before environmental and developmental values can be traded off).  
J. Meyers, in his article, has sought to trace the philosophical roots of the current recognition of environmental values. As one who has been engaged in the same activity for the past few years, I marvel at Professor Meyers' courage in attempting to isolate the most important arguments and to present a synthesis in a relatively few pages. The sources of our attitudes toward the biosphere have their foundation in the most profound ideas of Western culture, and to unravel the diverse influences is a lifetime task for any one scholar. Nonetheless Professor Meyers succeeds with his usual brevity and clarity in describing and, more importantly, criticizing the major philosophical influences on our legal system's response to societal demands for increased levels of environmental quality. In these comments I will suggest some of the implications of his major conclusions, briefly indicate the alternative approaches Professor Meyers rejects, and suggest some of the implications his analysis has for the development of new legal doctrines.

NATURE AND WILDERNESS PHILOSOPHY

The first topic addressed by Professor Meyers is the contemporary significance of the nature and wilderness preservation movement. Preservation of natural as well as manmade environments to reinforce our presumed moral and cultural heritage, or more often simply to assert aesthetic values, is a strong force in contemporary environmental thinking. The idea of preserving wilderness is a recent idea in Western and especially American culture, as Professor Meyers accurately demonstrates, and is no longer confined as it originally was to preserving vast tracts of remote uninhabited lands. Every remotely interesting building or meadow or wood is a fit subject for preservation for the same reasons remote wildernesses have been preserved. Maintenance of any status quo has become an increasingly attractive solution to many environmentalists. To me, Professor Meyers' analysis of 18th and 19th century romanticism's nature-mysticism and the resulting "transvaluation of values" to elevate enjoyment of nature to enjoyment of God illustrates the marginal legitimacy of much of contemporary environmental thinking with respect to preservation and aesthetics. Such thinking is often a naive and elegiac celebration of an irrelevant vision. As Leo Marx observes in his masterful study of 19th century literature's adaptation to technology, "What is important about the rural world [to that century] . . . is not merely the agricultural economy but its alleged

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10 See J. Passmore, MAN'S RESPONSIBILITY FOR NATURE 3-40 (1974), for such an attempt.
11 Id. at 109.
moral, aesthetic, and in a sense metaphysical superiority to urban, commercial forces that threaten it."

Intellectual hostility to urban life has great force. It is still argued that the remaining unspoiled areas of this country symbolize our commitment to the values of freedom, innocence, courage, and strength and thus reaffirm our national mission. A more accurate analysis of the late 19th century intellectual tradition's preoccupation with wilderness is that assertion of those values was a way of coping with the guilt for what we had to destroy to develop as a nation:

[W]hen their religious errand failed and no new social order materialized . . . Americans began to question whether they any longer had a mission of such importance that it merited tearing down a wilderness. They began to ask whether they were corrupting their environment—but only after they discovered . . . that their environment had corrupted them. The wilderness that had served them had also seduced them, and in destroying it, they destroyed something of their hopes, something of their history, and something of the future as well as of the past. . . .

. . . We had to act more or less as we did, but the recognition of what we have done—it is guilt—is a great resource to us: it provides a more human and more satisfactory motivation than does the simple pursuit of prosperity.

One would be tempted to conclude that having recognized the values wilderness represents, wilderness itself need not be preserved to maintain these values. Is it more important to have Thoreau's *Walden* or Walden Pond? Professor Mark Sagoff, despite his analysis quoted above, has, however, recently urged that the same reasons we preserve institutions by honoring their procedures, as we have recently done with the House Judiciary Committee hearings on the impeachment of President Nixon, apply to preservation of the environment: "The obligation to preserve nature, then, is an obligation to our cultural tradition to the values we have cherished and in terms of which nature and this nation are still to be described."

To the extent that arguments such as Professor Sagoff's represent a plea for recognition in the sense of consideration of aesthetic values, they have validity. To borrow Musgrave's public finance terminology, preservation of natural wonders and the promotion of aesthetics are

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14 *Id.* at 265.
merit goods. Society should be entitled to provide them by passing laws that withdraw resources from exploitation or by giving decision-makers the discretion to adopt rules designed to promote aesthetic objectives in order to reinforce collective values deemed to be important. Arguments such as Professor Sagoff's, however, go beyond pleas for selective recognition of these values; they assert the primacy of these values. At a deeper level, as Professor Meyers' analysis of Leopold and the modern critics of technology demonstrates, these arguments lead to a rejection of the incentives triggered by a system of private property and ultimately to a rejection of reliance on technology and models of rational choice as methods of conflict resolution.

Recently Professor Laurence Tribe of Harvard has been developing what seems to be a Neo-Hegelian alternative to classic utilitarianism, or as he calls it, instrumental rationality. The central principle of our present rational decisionmaking models is that diverse values should be reduced to a common denominator so that they can be compared and ranked. Whenever possible, quantification is sought so that the relative

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15 See R. Musgrave, THE THEORY OF PUBLIC FINANCE 13-14 (1959). Granting that wilderness should be preserved and aesthetic values recognized for reasons other than the promotion of resource use efficiency, it does not follow that formal methods of rational choice such as cost-benefit analysis are irrelevant. The case for recognition of these values is one for discretionary deviation from the norm of efficiency, not for their substitution across the board for efficiency. See Robinson, Wilderness: The Last Frontier, 59 MINN. L. REV. 1 (1974).

20 Sagoff stands in sharp contrast to the views of most legal scholars, which are not discussed, who have considered the question of whether we should recognize constitutional rights to a decent environment, e.g., Hanks & Hanks, The Right to a Habitable Environment, in THE RIGHTS OF AMERICANS 146 (N. Dorsen ed. 1971). Klipsch, Aspects of a Constitutional Right to a Habitable Environment: Toward an Environmental Due Process, 49 IND. L.J. 203 (1974), contains a good discussion of the problems and the cases which have rejected the right. The most influential argument for the recognition of new environmental rights expressly rejects raising environmental claims to the dignity of constitutional claims on the grounds the rights of the majority not minority are being asserted. Professor Joseph Sax in his book, DEFENDING THE ENVIRONMENT: A STRATEGY FOR CITIZEN ACTION (1971), argues for the recognition of expanded rights of access to the judicial system so that legislative and administrative choices can be subjected to scrutiny. Although the book is highly ambiguous at crucial points as to whether substantive or procedural rights are being created, Sax seems to conclude ultimately that the court's primary role is not to weigh the issues independently but to police the process of administrative and legislative decision. "The principal function of courts in environmental matters is to restrain projects that have not been adequately planned and to insist that they not go forward unless and until those who can demonstrate that they have considered, and adequately resolved, reasonable doubts about their consequences." Id. at 113.


values of alternative choices can be compared by a ranking procedure. Tribe persuasively argues that the process of quantification inevitably focuses on translating values into homocentric terms and that this results in two major distortions in terms of "higher" or environmental values: (1) "an inchoate sense of obligation toward natural objects is flattened into an aspect of self-interest," and (2) "value discontinuities tend to be foreshortened." A sense of obligation toward lower creatures and innate physical objects, which he considers the foundation of a new ethic, cannot develop as he prefers. Tribe's analysis flows from his conclusion, widely shared, that the fatal defect in recent Western thinking is the overemphasis on the means rather than the ends of social choice with the result that reason has become void of ethical insight. His critique of instrumental rationality and its necessary articulation of "environmental goals wholly in terms of human needs and preferences" is a powerful philosophical critique of the limits of cost-benefit analysis, but his attempts to sketch a positive philosophy for the preservation of the natural environment is less impressive. Realizing that all initial value preferences must of necessity be arbitrary, Tribe seeks to create processes which will allow society to choose a new set of values. But he also attempts to state the foundation of a new ethic. Pagan animism is rejected, as is pantheism, in favor of a call for a synthesis of transcendence (man's domination over nature through reason) with immanence (a recognition that humanity is part of nature, and natural order a constituent part of humanity). As we better identify with plants and animals, we can move "upward along the spiral of moral evolution." I do not fully understand Tribe's analysis, but in many ways it seems to be a reaffirmance of transcendentalism and a kind of instrumental pantheism. Just as Daphne fled Apollo, the god of reason, by having her father transform her into a laurel, Tribe seems to flee reason.

Ah, could I on some mountain height,
Roam in thy softly tender light,
Over the fields at twilight trail,
Drifting with spirits of hill and dale;
Then freed from knowledge and its pain,
Bathed in thy dew my health I'd gain.20

So sighs Goethe's Faust in his opening monologue.

This perhaps overstates Tribe's position, for his ultimate proposal

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is not a return to a simple set of first principles but a dynamic, noninstrumental process of choice. He expressly rejects pagan animism, for example, because it is a static concept which might well permanently block the progress of those now underprivileged by "freezing the social evolution of humanity into its contemporary mold." He hopes that we will choose to respect animals and innate nature for its own sake, but he does not demand it as does Sagoff.

The arguments of Tribe and Sagoff, different as they are, have considerable force, particularly Tribe's. There is much about our current uses of technology that calls out for fundamental change. In many respects the indiscriminate reliance on technology to solve resource use conflicts threatens to commit us to objectives which, upon deeper reflection, should be questioned and rejected. Ultimately, however, one must question, as professor Meyers implicitly does, the desirability of making such ideas operational. Both the theses of Tribe and Sagoff, particularly Sagoff's, have a tendency to raise a limited set of values to an unwarranted primacy. Such thinking must be carefully scrutinized because it is fundamentally inconsistent with democratic values. The values that are represented under the banner of environmental protection are still too disparate to warrant an a priori decision that they should always prevail in defined classes of conflicts. The incorporation of these values, which are unquestionably important, must be much more selective than environmentalists suggest, and such incorporation must always take place within processes which weigh competing values. It is for this reason that I would agree with Professor Meyers that there is another answer to Tribe's question, which ends his article, "Who can fail to admit that the homocentric logic of self-interest leads finally not to human satisfaction but to a loss of humanity?" In the next section I will discuss the implications of Professor Meyers' analysis for one such incorporation of environmental values, and in my comments on his affirmation of the relevance of economics I shall return to the tension between environmental values and the traditional democratic values of accommodating diverse interests.

Ecology

The analysis of the second problem addressed, ecology, deals with

21 As Tribe puts it, "For him, the right policy is always the one to which society's past, as revealed by the contemporary symbols of its values, inevitably points. For me, the 'right' policy is one chosen not to imitate an idealized past but to seek, even tentatively, an imagined future." Tribe, From Environmental Foundations to Constitutional Structures: Learning from Nature's Future, 84 YALE L.J. 556 (1975).

22 Tribe, supra note 18, 83 YALE L.J. at 1348.
the tension between the descriptive function of science and the prescriptive function of law. As I will argue shortly, the teachings of ecology provide a firmer basis for the recognition of environmental values than does the wilderness philosophy of Leopold; but here too, as Professor Meyers demonstrates, lawyers must be selective in their use of ecology.

Environmental lawyers seemed to have assumed that normative rules of law can be derived from the basic teachings of ecology. This assumption rests in turn on two further assumptions. First, ecology can tell us if a given human activity causes harm. Second, ecology can tell us which activities, and at what levels, are good and which are bad. As Professor Meyers demonstrates in his analysis of Commoner's *The Closing Circle,* these assumptions are overly simplistic. These assumptions rest in turn on the prediction of cause and effect relationships alien to science, and they reflect a confusion between the roles of the scientist as truth seeker and social critic. As a lawyer-scientist has recently written,

> in ordinary usage a cause is a necessary and sufficient precedent of its effect. This sense of "causation," however, has little utility for the scientist .... [W]hat scientific analysis yields is simply a description of past experience .... These results are almost always expressed in terms of a quantitative relationship between an independent variable (a "cause") and its dependent variable (the "effect").

Further, these statements as to the magnitudes of effects are morally neutral for they are descriptive rather than normative.

Scientific information alone cannot be the basis of prescriptive rules since a human activity such as the discharge of residuals into an ecosystem becomes injurious or harmful only after society decides that the benefits of the activity do not outweigh the consequences we do not prefer. Scientific information is a necessary condition for the identification and, generally, the solution of what we decide are problems, but it is not a sufficient one. Thus, as Professor Meyers argues, normative prohibitions cannot be so neatly derived from ecology as Commoner suggests, because ecological problems are social problems; and thus the costs and benefits of a solution must be considered before we can decide

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whether we want to eliminate or modify an activity or merely consider the consequences a cost to be borne by society. The concept of *damnum absque injuria* has wide application.

There is also a further problem with the derivation of normative concepts from ecology which Professor Meyers does not stress. That is the lack of available scientific information on which to base accurate predictions about the impact of an activity. Even if we did decide to prohibit all activities which approached some predetermined level of ecosystem modification, science simply cannot now provide us with precise enough information about the consequences. It can often, at best, suggest the dimensions of risks to which we will be subjected. In short, ecology often cannot even tell us the price of the lunch.

The difficulties of extrapolating social solutions from science do not mean we should disregard the basic principles of ecology. I agree with Professor Meyers' criticisms of Commoner but not with all of the implications he draws from them. There is much more force to the basic insights of ecology than he is willing to concede. After a masterful survey of man's attitude toward nature, beginning with the call of Genesis to multiply, replenish and subdue the earth, the Australian philosopher John Passmore wisely concludes:

> But without sentimentality, without recourse to metaphysics, we can still recognize that it is better to look first at the way things happen in nature and help them to work more effectively than to try to ride rough-shod over them merely in order to demonstrate the superiority of a rationality defined in wholly mathematical, or wholly economic, terms.\(^2^6\)

Historically the law has favored resource exploitation. While intellectuals were contemplating the mystery of nature, the law was creating a presumption, loosely defined, that in the long run and the short run, the benefits of an activity outweighed any adverse consequences. Uncertainty problems were solved in part by this presumption and by casting the burden on those objecting to the activity to establish that the adverse consequences would in fact occur. Injury was defined in terms of events that occurred or would occur within a relatively short time. Ecology suggests that the 19th century presumption in favor of exploitation, *e.g.*, modification of ecosystems, be replaced by one of caution before an activity is allowed. In short, our previous faith in technology and development must be leavened. For the reasons suggested previously, the presumption should not, however, be replaced with one in favor of

\(^{26}\) *Id.* at 39.
preservation, for that would give undue weight to environmental values. What is needed are procedures and rules which assess the impact of activities before they are allowed and shift to the initiator some of the burden of demonstrating that the impacts of the activity are desirable. These changes, which are underway in a nonsystematic fashion, should not be characterized in traditional burden-of-proof terms. Procedural devices such as the allocation of the risk of nonpersuasion and the use of presumptions are employed to permit a decision when the mind of the trier in the case is in equipoise on all the evidence. It is scientifically impossible to either prove or disprove that a risk will materialize, so a shift in the burden of persuasion would result in a change in a substantive rule. In many cases this would result in the unwarranted prohibition of a societally useful activity. Instead, a presumption of caution should be developed to require (1) the initiator of an action to display impact and risk information (this is not analogous to the burden of producing evidence, for the failure to produce should not always result in loss of the case) and (2) to allow the decisionmaker, be it judge or administrator, the discretion to incorporate a margin of safety into traditional notions of cause and injury.27

The incorporation of this presumption into the legal system will require modification of existing doctrines such as the requirement that imminent irreparable injury be established as a precondition to injunctive or related relief. The recent litigation against Reserve Mining's discharge of taconite tailings into Lake Superior illustrates the uneven progress of modification. Initially, a state court trial resulted in a finding that the discharges produced only minor modifications of the lake and thus did not constitute pollution, since any inferences as to damage to the lake would be speculative.28 The federal government then filed suit on the grounds that, inter alia, the discharge was a public nuisance under federal common law. Subsequently it was discovered that the discharges contained amosite asbestos, which exposed the citizens of Duluth, who got their water from the lake, to risks of cancer and other diseases, and the complaint was amended to allege a health hazard. After a lengthy trial with the presentation of sophisticated, contested but fragmentary scientific evidence on the alleged health hazards, the district court enjoined the operation of the plant on the grounds that it constituted a public nuisance under federal and state law.29 Reserve's de-

27 See Gelpe & Tarlock, supra note 24, at 412-27, for a fuller analysis of this problem.
fense that a threshold level of injury had not been established was rejected on the grounds that there was no known level of safe exposure and thus "to permit the present exposure to continue is nothing more than a gamble with the hopes that the threshold level, if there is one, has not been or will not be reached." Reserve's defense that injunctive relief was not proper because there was no evidence to date that anybody has been seriously injured was similarly rejected on the grounds that the "sanctity of human life is of too great value to this court" to require a showing that the discharges result in a statistically significant number of deaths. An injunction was granted after the court concluded that abatement was economically and technologically feasible. The Government's introduction of evidence on public health hazards made the case easier, for it was no longer making, directly, the radical claim that Lake Superior should be protected per se but was arguing by analogy to the fundamental principle that human beings should not be injured. Nonetheless the trial judge's willingness to accept the scientific evidence of hazards, which was based on inferences drawn from diverse research projects, is a major recognition of risk of future injury—as opposed to demonstrable harm—as a basis for prohibiting an activity; and it represents a substantial liberalization of the traditional standards of proof of harm. All scientific inferences are simply educated speculations, and it would have been easy for the court to set a standard of proof of harm too high to be satisfied by the existing state of knowledge. Reserve Mining was able to establish that it was impossible to predict on scientific grounds that there will be an increased incidence of cancer in the population of Duluth by virtue of their exposure to asbestos fibers in the air and water. The court accepted the statement of a medical witness that because information as to what would happen was

418 U.S. 911 (July 9, 1974), supplemental opinion recommending reinstatement of injunction, 380 F. Supp. 11, 71 (D. Minn. Aug. 3, 1974), application to vacate or modify stay denied, 419 U.S. 802 (Oct. 11, 1974), injunction modified, case remanded, — F.2d —, 7 E.R.C. 1618 (8th Cir. Mar. 14, 1975). An important administrative decision prohibiting a substance because of carcinogenic risks is In re Shell Chemical, 6 E.R.C. 2047 (Environmental Protection Agency FIFRA Nos. 145 et al. 1974). The issue was whether the registration for Aldrin-Dieldrin, a chemical pesticide, should be suspended. A suspension order, which resembles a preliminary injunction, requires a finding that continued usage poses an imminent hazard to man or the environment. The administrative law judge held on the basis of expert testimony that it was permissible to extrapolate from laboratory experiments on mice that the chemicals posed a risk of cancer in humans. Shell's criteria for such an extrapolation, which included inter alia at least one incident of cancer that is compound-related, were rejected because the demands "are practically impossible to meet." 6 E.R.C. at 2055. The District of Columbia Circuit affirmed the suspension order, finding substantial evidence in support. Environmental Defense Fund, Inc. v. Environmental Protection Agency, 510 F.2d 1292 (D.C. Cir. 1975).

30 380 F. Supp. at 47.
31 Id. at 54.
unavailable "using techniques that would be acceptable to the medical community," the carcinogens should be removed pending further research.

The Eighth Circuit stayed the injunction pending a resolution of the merits on the condition that Reserve act promptly to abate the discharges, but the court's reasoning seems to undercut much of the risk analysis of the district court and thus is a disturbing precedent. Judge Bright, in reviewing the evidence, placed great emphasis on the limited available knowledge about impact and on the methodological problem of the various research studies. To the court, a review of the medical testimony compelled the conclusion that:

[A]lthough Reserve's discharges represent a possible medical danger, they have not in this case been proven to amount to a health hazard. The discharges may or may not result in detrimental health effects, but, for the present, that is simply unknown. The relevant legal question is thus, what manner of judicial cognizance may be taken of the unknown.

We do not think that a bare risk of the unknown can amount to proof in this case. Plaintiffs have failed to prove that a demonstrable health hazard exists. This failure, we hasten to add, is not reflective of any weakness which it is within their power to cure, but rather, given the current state of medical and scientific knowledge, plaintiffs' case is based only on medical hypothesis and is simply beyond proof.

We believe that Judge Lord carried his analysis one step beyond the evidence. Since testimony clearly established that an assessment of the risk was made impossible by the absence of medical knowledge, Judge Lord apparently took the position that all uncertainties should be resolved in favor of health safety. Since the appropriate threshold level for safe toleration of fibers was unknown, the district court tipped the balance in favor of attempting to protect against the unknown and simply assumed that Reserve's discharge presents a health hazard. In doing so, he disregarded the tissue studies of his own experts which provided direct evidence to the contrary. If we are correct in our conclusion that evidence does not exist in the record on which to find Reserve's discharges to be unsafe, the district court's determination to resolve all doubts in favor of health safety represents a legislative policy judgment, not a judicial one. See Industrial Union Department, AFL-CIO, et al. v. Hodgson, [499 F.2d 467, 474-75 (D.C. Cir. 1974)].

The court was not unsympathetic to the risks posed to the citizens of

32 Id. at 51.
33 Reserve Mining Co. v. United States, 498 F.2d 1073 (8th Cir. 1974).
34 Id. at 1083–84.
Duluth, but considered itself constrained to deal with the problem: "[W]e are a court of law, governed by rules of proof, and unknowns may not be substituted for proof of a demonstrable hazard to the public health."35

After the Supreme Court denied two requests to vacate the stay,36 the Eighth Circuit reached the merits.37 This time Judge Bright displayed a high level of sensitivity to the need to apply a risk-benefit analysis to a dispute that lay on the frontiers of scientific knowledge, and backed somewhat but not totally away from his earlier preliminary assessment of the merits. Reserve's discharges were found to constitute pollution under the Federal Water Pollution Control Act Amendments of 1972, but the company was given a reasonable time to develop an abatement plan because an immediate injunction was not justified, given the balance between the unpredictable health effects and the consequences of closing the plant. The court construed section 1160(g) of the FWPCA, which requires the United States to establish that a discharge which violates a state water quality standard is also "endangering the health or welfare of persons."38 Judge Bright concluded that Congress used "endangering" in a precautionary and preventative sense, and held:

The record shows that Reserve is discharging a substance into Lake Superior waters which under an acceptable but unproved medical theory may be considered as carcinogenic. As previously discussed, this discharge gives rise to a reasonable medical concern over the public health. We sustain the district court's determination that Reserve's discharge into Lake Superior constitutes pollution of waters "endangering the health or welfare of persons" within the terms of §§ 1160(c) (5) and (g)(1) of the Federal Water Pollution Control Act and is subject to abatement.39

The Eighth Circuit's acceptance of a risk-benefit analysis to define pollution under the Federal Pollution Control Act Amendments of 1972 is a recognition of the need for new concepts of cause and harm.

35 Id. at 1084. But see id., 380 F. Supp. 11, 89-90 (supplemental opinion). For a more serious example of the rigidities of existing concepts of cause and injury, see Ethyl Corp. v. Environmental Protection Agency, — F.2d ——, 7 E.R.C. 1353 (D.C. Cir. Jan. 28, 1975) (EPA committed a "clear error of judgment" in concluding lead in the air was a health hazard).
39 —— F.2d at ——, 7 E.R.C. at 1643.
However, the court drew a sharp distinction between the power of Congress to decide what risks society should bear and the power of a court to make these decisions under common law standards of liability. Judge Bright suggested that it would be "unwise" as well as unnecessary to rely on federal nuisance law. This distinction represents too narrow a view of the court's discretion to prohibit an activity when its ultimate impact is uncertain. Current concepts of hazard still require a showing that identifiable injuries will occur within a relatively close time horizon, but this definition of hazard rests in part on the assumption that future risks will in fact turn out to be minimal because society will find a way to deal with the problem. It is true that a legislature or administrative agency may have more power to conclude that an activity is a risk, but this should in no way limit the power of a court to expand concepts such as cause-in-fact, hazard, and imminent irreparable harm to permit a risk-benefit analysis. As the lower court opinion illustrates, such an analysis can be made with all the procedural rigors necessary to constitute proof. In the endeavor to fashion rules which require scrutiny of the side effects of an activity and an expansion of concepts of cause, harm, and injury, reference to the basic teachings of ecology, that modifications of natural systems are suspect, is one of the incremental adaptations to changing social needs; and, as Cardozo argued, it is proper for the common law to respond to these adaptations simultaneously with legislatures and administrative agencies. Because the opportunity costs of foregoing the use of a resource are likely to be substantial, a homocentric perspective should be maintained in expanding the definitions of harm and injury. I do not believe, however, that this perspective is incompatible with recognition that our continued productive use of resources can be threatened in ways we do not fully understand, and thus we need to be more cautious than we have been in the past before we begin to exploit.


42 Rules distinguishing between compensable and incompensable consequential damages are judicial creations "founded upon necessity." Richards v. Washington Terminal Co., 233 U.S. 546, 555 (1914). Justice Pitney characterized the rule granting railroads immunity for incidental damages as "so well established that it amounts to a rule of property, and should be modified, if at all, only by the law-making power." Id. at 555. An analysis of when an expectation is protected under the fifth and fourteenth amendments is beyond the scope of this comment. The accepted rationale for protecting such expectations is that there has been reliance on their continued recognition and that no notice of the likelihood of nonrecognition was given. It is, at a minimum, reasonable to conclude that a discharger such as Reserve Mining was on notice that new information might dis-
Economics

Professor Meyers finds the final branch of learning he surveys, economics, to be the most promising for the integration of environmental values into the calculus of interests relevant to the solution of resource use conflicts. Lawyers currently find economics a useful way of analyzing the policy choices implicit in legal doctrines, for it allows one to describe systematically the costs and benefits of alternative policies. Beyond this it is natural that a lawyer would find welfare economics, properly understood, congenial, for economics is a process for accommodating a great variety of competing human desires. It is also a process which can meet the lawyers' test of process legitimacy—fairness in the sense of consistency with democratic values. The pursuit of efficiency as a societal objective can be defended on the grounds of fairness as the distinguished economist E. J. Mishan has argued:

[A] theory of welfare economics might be developed from the democratic process. If the latter operates not as a majority-rule decision mechanism—justified on the cynical view that, in the last resort, it is better to count heads than to break them—but rather as a method of reaching agreement through informed debate, then indeed the principles by which broad categories of decisions are reached becomes relevant. For if consensus is reached through informed debate on certain sorts of issues, the existence of a common context of aspirations must be presumed. There is then likely to emerge a search for consistency in decision-taking on such issues, one that will tend to promote a common set of criteria. One such range of issues would comprehend certain kinds of economic problems, and the criteria sought for would be of an allocative nature. The incentive for discovering such criteria is, of course, economic. Once formulated, the implications of certain kinds of economic measures need not be debated at great length: they can be judged directly by reference to these allocative or 'welfare' criteria which, over time, will acquire a sort of constitutional status. In such an idealized democracy one might hope that time and intelligence would throw up those welfare propositions by which economists today seek to justify their prescriptive statements.43

Nonetheless the final section of Professor Meyers' article will be the most controversial, for his affirmation of neoclassical economics rejects the arguments that the moral and scientific imperatives of environmentalism are overriding. The issue in the clash between many

close a public health hazard. Prohibition of activities on other grounds such as aesthetics raises more serious constitutional questions, since the change in expectations is more sudden.

environmentalists and economists is, as the article indicates, the proper role of the government in providing for environmental quality. Professor Meyers endorses the neoclassical role of the government, which limits intervention to the assignment and enforcement of property rights and the correction of allocation distortions caused by the existence of externalities. The neoclassical arguments are powerful ones with broad applicability to resource use conflicts, but their relevance to all environmental problems bears more scrutiny than Professor Meyers suggests. The basic rationale for government intervention under the neoclassical view is the need to encourage the internalization of external costs which distort the efficient allocation of resources. But the concept of an external cost is not self-defining. The welfare economics literature has been more concerned with explaining the consequences of the presence of externalities than with exploring the assumptions that lie behind the notion that the side effect of an activity is an external cost. The basic notion of cost, as used by welfare economists, is the value a person must presently forego when one alternative use of resources is preferred over another. This concept enables one to calculate costs and benefits only in terms of values society has previously assigned to alternative resource uses. Thus, current concepts of cost provide an incomplete basis on which to conclude that society should or should not tolerate the side effects of an activity.

A further problem with reliance on present techniques of welfare economics analysis is that the press toward quantification so powerfully criticized in the work of Professor Laurence Tribe, discussed earlier,\(^4\) levels to significant value distortions particularly when questions of risk are concerned. The limitations inherent in current conceptions of cost make it difficult to analyze all environmental problems in the framework suggested by Professor Meyers. What works beautifully for air and water pollution and perhaps land use control may not work, for example, for the breeder reactor. For example, the distinguished economist Allen Kneese, who labeled the fast breeder reactor a "Faustian bargain," did so as he testified that the problem was not one that could be analyzed within conventional cost-benefit analysis. He called instead for a national debate on energy policy with a resulting "political" choice among alternative sources.\(^5\) However, despite these criticisms, I

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\(^4\) See notes 18–19 supra & text accompanying.

believe Professor Meyers is right to prefer the principles of welfare economics to the other value systems he surveys. As Mishan has suggested, welfare economics, for all its limitations, provides a structure in which rational debate over resource use priorities can occur. It is no mean achievement that aggregates of preferences can be reduced to a common denominator.

CONCLUSION

*An Introduction to Environmental Thought: Some Sources and Some Criticisms* is an important contribution to environmental law. The article is a thoughtful call for the integration of environmental values into the existing calculus of values relevant to the resolution of resource use conflicts. It is also a rejection of the need for a radical new ethic of resource use as opposed to the more gradual and selective recognition of new values. The accommodation of environmental and developmental values is a formidable one, and this article contributes to the process by clarifying many of the important issues that must now be faced, regardless of whether one agrees with all of Professor Meyers’ conclusions.