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Ways Not To Think About Plastic Trees: New Foundations for Environmental Law

Laurence H. Tribe†

*Remember these things lost;
and under the vaulting roof of the cathedral
burn a candle to the memory.*¹

Baudelaire's *Rêve Parisien* paints what is quite literally a still life—a dreamscape of a metallic city where groves of colonnades stand in the place of trees and, in the place of water, pools of lead.² More prosaic but no less unnerving was the recent decision by Los Angeles County officials to install more than 900 plastic trees and shrubs in concrete planters along the median strip of a major boulevard.³ The construction of a new box culvert, it seemed, had left only 12 to 18 inches of dirt on the strip, insufficient to sustain natural trees.⁴ County officials decided to experiment with artificial plants constructed of factory-made leaves and branches wired to plumbing pipes, covered with plastic and “planted” in aggregate rock coated with epoxy.⁵ Although a number of the trees were torn down by unknown vandals⁶ and further plantings were halted,⁷ the tale may not be over. For an article in *Science*⁸ suggested recently that, just as advertising

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1. Brower, in *TIME AND THE RIVER FLOWING* 159 (F. Leydet ed. 1968) (writing of a great cavern, submerged during Lake Powell's creation in June, 1965, that had once been called the Cathedral in the Desert).

2. C. BAUDELAIRE, *Rêve Parisien*, in *LES FLEURS DU MAL* 129, 347 (1955).

3. See L.A. Times, Feb. 8, 1972, § 2, at 6, col. 2. Plastic birds were subsequently added by unknown persons. See L.A. Times, Mar. 14, 1972.

4. See L.A. Times, Feb. 6, 1972. It may be that the decision to use plastic trees was also connected with the difficulty of sustaining natural plant life in the polluted atmosphere of Los Angeles County. See Chicago Tribune, Feb. 22, 1972, § 1, at 18, col. 2. (“Their admittedly logical argument is that little else will survive in that smogladen climate and that a plastic tree is more attractive than a dead and rotting one.”)

5. See L.A. Times, Feb. 8, 1972.

6. See L.A. Times, Mar. 1, 1972.

7. See L.A. Times, Feb. 22, 1972.

8. Krieger, *What's Wrong with Plastic Trees?*, 179 *SCIENCE* 446 (1973).

can lead people to value wilderness and nature, so too it can "create plentiful substitutes."⁹ "The demand for rare environments is . . . learned," the *Science* article observes, and "conscious public choice can manipulate this learning so that the environments which people learn to use and want reflect environments that are likely to be available at low cost. . . . Much more can be done with plastic trees and the like to give most people the feeling that they are experiencing nature."¹⁰

While so explicit an acknowledgment of the acceptability of artificial environments may be unusual, the attitude it expresses toward the natural order is far from uncommon. Increasingly, artificial objects and settings supplant those supplied by nature. Durable AstroTurf replaces grass in football stadiums and around swimming pools.¹¹ Guests at the Hyatt Regency hotel in San Francisco walk among more than 100 natural trees growing in the 20-story lobby but listen to recorded bird calls broadcast from speakers hidden in the tree branches.¹² And Walt Disney World offers a multitude of visitors what one *Newsweek* writer described as "a programmed paradise."¹³

I do not focus on AstroTurf and the plastic trees of Los Angeles as harbingers of our most urgent environmental problems. Although the long-term prospects in this regard are probably more troublesome, I claim no imminent risk that we will too cleverly engineer ourselves into a synthetic hell. Quite apart from any such danger, I believe that such "nature surrogates" provide an illuminating metaphor through which to expose and criticize certain premises which underlie most current discussions of environmental thought, law, and policy.

While it might appear initially that nature surrogates would be antithetical to the ecological concern embodied in present environmental legislation and policy, a closer analysis leads to precisely the

9. *Id.* at 451.

10. *Id.* at 451, 453. Thus, when Roland Barthes saw in plastic "the stuff of alchemy" and in its ubiquity the message that "the whole world can be plasticized," he foretold more than he could have known. R. BARTHES, *MYTHOLOGIES* 97-99 (A. Lavers transl. 1972).

11. The virtues of AstroTurf are amply extolled in Monsanto's advertising: At last, the work-free poolside! Simply install 'Round-the-Home AstroTurf . . . it gives your poolside the look of lush grass, right up to the water's edge. Besides being bright, beautiful, durable and fade resistant, 'Round-the-Home AstroTurf is also easy to maintain—simply wash it with a hose . . .

Monsanto Co. advertisement (on file with the *Yale Law Journal*).

12. Press release from Hyatt Regency San Francisco, May 8, 1973 ("Along the south side of the lobby runs a 130-foot long rock-lined 'babbling brook,' backed by a huge planter of shrubbery and live trees. Also located in this section of the lobby is a unique 'sound sculpture' Stereophonic speakers concealed in the foliage simulate the sound of songbirds flitting through the atrium.") (on file with the *Yale Law Journal*).

13. Morgenstern, *What Hath Disney Wrought!*, *NEWSWEEK*, Oct. 18, 1971, at 38.

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opposite conclusion. The perpetually green lawn and the plastic tree, far from representing the outcroppings of some inexplicable human perversion, are expressions of a view of nature fully consistent with the basic assumptions of present environmental policy. These assumptions, which are implicit in developing uses of policy analysis as well as in emerging institutional structures, make all environmental judgment turn on calculations of how well human wants, discounted over time, are satisfied.

This article will attempt to identify the roots and expose the inadequacies of this homocentric perspective and will tentatively outline the shape of an alternative foundation for environmental law.

I. The Limits of Analytic Sophistication: Nature and Reason in the Service of Man

Despite occasional probes in less familiar directions,¹⁴ the emerging field of environmental law is being built on the basic platform of analytic sophistication in the service of human need. Statutes¹⁵ and judicial decisions¹⁶ typically mandate "systematic" and "interdisciplinary" attempts to "insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations."¹⁷ Public interest challenges to decisions alleged to be environmentally unsound are diverted by the pressures of doctrine and tradition from claims about the value of nature as such into claims about interference with human use,¹⁸ even when the real point may be that a particular wilderness area, for example, should be "used" by no-one.¹⁹

A. *Technical Capacities and Limitations*

1. *Fragile Values*

From the start, the aspect of environmental policy analysis that has most concerned students of the matter has been the supposed diffi-

14. See, e.g., Stone, *Should Trees Have Standing?—Toward Legal Rights For Natural Objects*, 45 S. CAL. L. REV. 450 (1972).

15. See, e.g., National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-47 (1970).

16. See, e.g., *Calvert Cliffs' Coordinating Comm., Inc. v. AEC*, 449 F.2d 1109 (D.C. Cir. 1971).

17. National Environmental Policy Act of 1969 §§ 102(2)(A), 102(2)(B), 42 U.S.C. §§ 4332(2)(A), 4332(2)(B) (1970).

18. See, e.g., *United States v. SCRAP*, 412 U.S. 669 (1973); *Sierra Club v. Morton*, 405 U.S. 727 (1972).

19. See, e.g., 405 U.S. at 741 (Douglas, J., dissenting); *id.* at 755 (Blackmun, J., dissenting).

culty of ever incorporating certain *kinds of values* into systematic analyses of environmental problems, whether in the service of legislators, of planning agencies, of litigators, of private enterprises, or of courts.²⁰ Various described as fragile, intangible, or unquantifiable, these values have been widely thought to possess peculiar features making them intrinsically resistant to inclusion along with such allegedly "hard" concerns as technical feasibility and economic efficiency. In particular, those dimensions of a choice for which market prices do not exist have seemed to pose intractable obstacles to "objective measurement."

It does not take long to discover, however, that this emphasis on categorizing fragile values embodies a misleading formulation of the problem and an inadequate appreciation of the analytic capacities latent in the techniques under examination. To be sure, the aspirations of some policy analysts to an elusive "objectivity,"²¹ the identity of their constituents,²² and the advocacy role often expected of them by their clients,²³ induce certain practitioners to overlook or under-stress a variety of values that might, in context, be characterized as "fragile." More specifically, insofar as analysis is intended to help a decisionmaker persuade others of the justifiability and wisdom of his choice,²⁴ its usefulness in the absence of consensus as to goals is predictably reduced whenever it does not at least appear to point "ob-

20. In assessing the tendencies of contemporary thought with respect to analytic methods and their place in environmental policy, I am relying only in part upon the published literature. For my views on these matters have been shaped not only by such literature but also by a series of meetings and discussions sponsored by the American Academy of Arts and Sciences under the auspices of the National Science Foundation, which have aimed at investigating the complex interactions of analysis and values in environmental decisionmaking. Those discussions took place from 1970 through 1973 and involved two dozen persons from fields as diverse as nuclear physics, the history of religion, systems analysis, and ecology. A version of this article is scheduled to appear as a chapter in a book I am editing for the American Academy on the subject of values and environment.

21. See Tribe, *Policy Science: Analysis or Ideology?*, 2 PHIL. & PUB. AFFAIRS 66, 84 (1972) ("[s]eeking to limit himself to matters about which he can be 'completely objective,' the policy analyst who must compare two alternative courses of action first focuses on the *consequences* of each alternative . . . and then on *objectively comparable features* of those consequences . . .") [hereinafter cited as *Policy Science*], in BENEFIT-COST AND POLICY ANALYSIS 1972, AN ALDINE ANNUAL ON FORECASTING, DECISION-MAKING, AND EVALUATION 3-47 (W. Niskanen, A. Harberger, R. Haveman, R. Turvey & R. Zeckhauser eds. 1972) [hereinafter cited as ALDINE ANNUAL].

22. See *Policy Science*, *supra* note 21, at 104 ("[q]uite obviously, the only values that can be served [by the analyst who accepts his client's ends as given] will be those strongly held by persons who seek a policy analyst's aid.")

23. See Tribe, *Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality*, 46 S. CAL. L. REV. 617, 627 (1973) ("[policy] analysis is often intended not only to aid the decisionmaker in choosing a course of action, but also to help him in *persuading others* of the justifiability and wisdom of his choice.") [hereinafter cited as *Technology Assessment*].

24. See Keeney & Raiffa, *A Critique of Formal Analysis in Public Decision Making*, in ANALYSIS OF PUBLIC SYSTEMS 64 (A. Drake, R. Keeney & P. Morse eds. 1972).

jectively” and unambiguously toward a particular alternative. The users of policy-analytic techniques in advocacy situations are thus under constant pressure to reduce the many dimensions of each problem to some common measure in terms of which “objective” comparison seems possible—even when this means squeezing out “soft” but crucial information merely because it seems difficult to render commensurable with the “hard” data in the problem.²⁵ These tendencies are aggravated by the institutional and legal contexts in which analytic techniques are ordinarily used: Such techniques tend to be deployed as tools only by the individual combatants in policy conflicts; thus the only values consistently served are those strongly felt by persons motivated and able to seek a policy analyst’s aid—a circumstance likely to exclude values too widely diffused over space, or too incrementally affected over time, to be strongly championed by any single client of a policy analyst; values associated primarily with persons not yet in being (future generations); and values not associated with persons at all (for example, the “rights” of plants or animals).

Having said all of this, however, one must concede that there is nothing in the structure of the techniques themselves, or in the logical premises on which they rest, which inherently precludes their intelligent use by a public decisionmaker in the service of these “intangible,” or otherwise “fuzzy,” concerns.²⁶ Despite what appears to be a widely held assumption to the contrary, all such concerns can in theory be incorporated in a rigorous analysis, either by using various market price or other numerical surrogates to value extramarket costs or benefits,²⁷ or by the technique of “shadow pricing”—that is, qualitatively describing as best one can the contents of a constraint as intangible as natural beauty or procedural fairness or respect for future generations, and then calculating the tangible benefits that would have to be forgone if one were to insist that one’s policy conform to the constraint described.²⁸

Thus, even in the relatively unsophisticated (by current standards) cost-benefit analyses performed to evaluate alternative levels of water quality improvement in the Delaware estuary, the enhanced swimming, fishing, and boating possibilities of a cleaner Delaware River

25. Cf. Tribe, *Trial by Mathematics: Precision and Ritual in the Legal Process*, 84 HARV. L. REV. 1329, 1361-65, 1389-90 (1971) (discussion of the “dwarfing of soft variables”).

26. See *Policy Science*, *supra* note 21, at 90-93, 106; *Technology Assessment*, *supra* note 23, at 630, 632-33.

27. See, e.g., Knetsch, *Economics of Including Recreation as a Purpose of Eastern Water Projects*, 46 J. FARM ECON. 1148, 1150 (1964).

28. See McKean, *The Use of Shadow Prices*, in PROBLEMS IN PUBLIC EXPENDITURE ANALYSIS 33, 47-48 (S. Chase ed. 1968).

were translated into dollar terms. The methods used in that translation were highly questionable in their ability to measure the economically relevant variables (that is, to measure how much prospective swimmers, fishermen, and boaters would willingly sacrifice before becoming indifferent between the enhanced opportunities caused by an improvement and the opportunities previously available to them),²⁹ and it is true that those variables themselves could not measure the value of enhanced water quality to future generations, or to the aquatic life that inhabits the estuary.³⁰ But an observer who believes that such values also matter could describe their significance in any terms that seem appropriate, and the analyst could then calculate how costly it would be to raise the water quality to the level demanded by the observer's description.³¹ Whether the sacrifice was justified by the values invoked would then have to be determined by whichever individuals or groups were responsible for making the choice in question. That their decision would be a difficult one reflects not any intrinsic weakness of the analytic methodology as applied to nonmonetizable values but rather the universal difficulty of choosing among incommensurables, a difficulty that can be obscured but never wholly eliminated by any method of decisionmaking.

It should be added as a qualifying caveat, however, that the tools of analysis are currently too blunt to be of very great use in this endeavor. If the analytic disciplines are truly to clarify the relations within and among values so as to identify inconsistencies not otherwise perceived and to show that some perceived conflicts are in fact illusory by inventing "policies from which two groups with apparently conflicting interests can both benefit,"³² then the analytic fields, and the scientific disciplines which support them, must sharpen both their capacity to ask and answer probing and imaginative "what if" questions, and their capacity to understand and describe in some detail what each of the nonmonetary values significantly involved in a choice really represents.

Organizations engaged in environmental policy analyses are rarely able today to discover or to articulate the underlying character of the

29. See B. ACKERMAN, *THE UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY*, chs. 7-8 (forthcoming 1974).

30. See generally Stone, *supra* note 14.

31. More precisely, the analyst could compute a joint probability distribution identifying the likelihood of each level of cost, and each level of improvement, that the strategy might involve.

32. H. Brooks, *What is Technology Assessment?*, Dec. 12, 1972, at 8 (UNESCO Paper on file with the *Yale Law Journal*). See also C. SCHULTZE, *THE POLITICS AND ECONOMICS OF PUBLIC SPENDING 74-75* (1968); *Policy Science*, *supra* note 21, at 99; *Technology Assessment*, *supra* note 23, at 626-27 & n.32, 635 & n.60.

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ecological and aesthetic concerns, many of them essentially symbolic, that play so major a role in environmental disputes or to design the models that would be needed to facilitate a thorough search of even mildly novel alternatives. It may be, as Nobel laureate Murray Gell-Mann has proposed,³³ that we must therefore develop a new group of professionals sensitive to the sorts of values and issues that analyses currently tend to slight—diversity, balance, aesthetic quality, reversibility, the claims of the future—and adept at modeling policy impacts in terms of such values. In studying a particular environmental case, such professionals might translate each of the relevant values or concerns into a parameterized constraint designed to show how costly the options for choice would be from the perspective of the value in issue. Thus, for example, a “distortion of natural landscape”³⁴ index might be studied to determine how slowly or rapidly the other costs associated with a project would rise if that index were constrained within lower and lower levels; an “ecological diversity” index might be examined to ascertain what increments in various cost curves would result as one tightened the ecological constraint by forcing this index ever higher.

The curves generated by this sort of analysis will at times have a more complex structure than those typically assumed by analysts, especially those trained primarily in neoclassical economics. For example, most individuals would probably not trade breathing rights below a certain point for even limitless rights to pollute. And many persons—far from regarding such human capacities as eyesight, hearing and physical mobility as all subject to continuous trade-offs to levels approaching zero—probably have preference orderings that display significant discontinuities, lexicalities,³⁵ and nonzero thresholds which an adequate analysis would be forced to consider.³⁶

33. Conversation with author, in Santa Monica, Cal., Dec. 7, 1971.

34. See R. d'Arge, *Economic Policies, Environmental Problems and Land Use: A Discussion of Some Issues and Strategies in Research*, July 25-Aug. 5, 1972, at 14 (Background Paper for NSF Conference on Research Needs in Planning Our Physical Environment, Boulder, Colo., on file with the *Yale Law Journal*).

35. A list of goods L_1, L_2, \dots , etc., is “lexically ordered” for a decisionmaker in the sense here employed if the decisionmaker, in comparing any pair of alternatives A_1 and A_2 , would not consider it relevant whether A_1 or A_2 provided more of L_{i+1} unless A_1 and A_2 could both be shown to provide a specified threshold level T_i of the good L_i ; if only A_1 were to provide level T_i of the good L_i , the decisionmaker would prefer A_1 to A_2 however much A_2 might exceed A_1 with respect to the good L_{i+1} . See Hausner, *Multidimensional Utilities*, in *DECISION PROCESSES* 167-80 (R. Thrall, C. Coombs & R. Davis eds. 1954); P. Fishburn, *Lexicographic Orders, Utilities and Decision Rules: A Survey*, Aug. 1972 (unpublished paper on file with the *Yale Law Journal*).

36. See *Policy Science*, *supra* note 21, at 88-93. Among the most serious of the difficulties the analyst would face—and it is a difficulty that economic analyses of “rights” have invariably overlooked—is that being “assigned” a right on grounds es-

However difficult the investigation of such ordering structures might be, and however complex may be the general task of defining the relevant parameterized constraints and generating the associated curves, the effort to move analysis in such directions should at least prove illuminating. And even before anyone is very good at the task of attaching shadow prices to varying levels of constraints as elusive as ecological diversity, the *attempt* to attach them rather than simply incorporating such constraints in an all-or-nothing fashion should lead to better decision processes even if not better outcomes. Whether or not new professions must be developed in order to perform this sort of task sensitively, it seems clear that treating the problem as an *inherent* incapacity of analysis to incorporate the intangible can only retard the needed development of these important abilities.

2. *Conflicting Goals*

A second common formulation of the limits of environmental analysis has centered on the alleged difficulty of systematically dissecting problems characterized by a multiplicity of partially or wholly conflicting goals. Analytic techniques can be of virtually no use, it has at times been suspected, outside the few situations (rarely encountered in the environmental field) where one is optimizing a single, well-defined objective subject to agreed-upon constraints.³⁷ It is true that many analytic methods prove most powerful in the single objective case³⁸ and that various pressures tempt both analyst and client, however misleadingly, to reduce all the dimensions of a question to a common denominator (such as "net benefits," as in the case of the Delaware estuary analysis) or at least to smoothly exchangeable attributes,³⁹ but the temptation is one that has at times been resisted. The existence of that temptation, while properly a source of caution in the application of analytic techniques to environmental problems, cannot warrant a conclusion that those techniques are useless, or even that they are invariably more dangerous than helpful.

essentially reducible to arguments from efficiency with respect to the relevant cost curves might well fail to satisfy peculiarly human needs that can be met only by a shared social and legal understanding that the right (e.g., a right to breathe or to see) belongs to the individual because the capacity it embodies is organically and historically a part of the person that he is and *not* for any purely contingent and essentially managerial reason. See *id.* at 87 n.54, 88-89 & n.56; *Technology Assessment, supra* note 23, at 629-30 & n.44.

37. See, e.g., A. RIVLIN, *SYSTEMATIC THINKING FOR SOCIAL ACTION* 7 (1971); Schlesinger, *Uses and Abuses of Analysis*, in *PROGRAM BUDGETING AND BENEFIT-COST ANALYSIS* 346, 355 (H. Hinrichs & G. Taylor eds. 1969).

38. See *Technology Assessment, supra* note 23, at 627.

39. See *id.*; *Policy Science, supra* note 21, at 84-97.

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The approach of displaying a multitude of perspectives, with a distinct objective function defined for each,⁴⁰ has often been proposed—sometimes vaguely⁴¹—but occasionally in a quite unambiguous and operational form.⁴² Such techniques make it possible at least to expose for intelligent debate the trade-offs involved in various alternatives, and sometimes even to suggest formerly unconsidered options that would “score” well in terms of all the perspectives under examination. If techniques of this sort are augmented by bureaucratic and organizational analyses⁴³ that take into “account . . . realistically the pluralistic milieu in which policy decisions are made and carried out,”⁴⁴ their predictive value—and hence, indirectly, their prescriptive value as well—may prove to be considerable in environmental controversies, particularly when we understand more thoroughly than at present the bureaucratic politics peculiar to organizations with environment-related responsibilities⁴⁵ and the behavioral dynamics of the situations they routinely confront.

3. Means-Ends Fluidity

Yet a third tentative hypothesis regarding the limits of analysis has been the possibility that, perhaps in environmental matters even more than others, most people lack clearly articulable ends and values at any given time and have only vague ideas about what they might regard as desirable or undesirable; such inchoate values are crystallized into distinct preferences or criteria of choice only through the concrete process of seeking means to attain them and gradually discover-

40. An “objective function” is a rule that associates with each potential choice a single mathematically determined value by means of which the choice can be comparatively ranked with respect to a defined goal, objective or attribute—such as total cost to a particular individual or group, or risk of death to another, or level of aesthetic enjoyment (however approximated) to still another.

41. See, e.g., the 1970 proposal of P. Self, discussed in Williams, *Cost-Benefit Analysis: Bastard Science? And/Or Insidious Poison in the Body Politick?*, 1 J. PUB. ECON. 199, 221-22 (1972) [hereinafter cited as *Bastard Science*], in ALDINE ANNUAL, *supra* note 21, at 70-71; *Policy Science*, *supra* note 21, at 107-08.

42. See, e.g., Dorfman & Jacoby, *A Model of Public Decisions Illustrated by a Water Pollution Policy Problem*, in PUBLIC EXPENDITURES AND POLICY ANALYSIS 173 (R. Haveman & J. Margolis eds. 1970). See also TECHNICAL COMMITTEE OF THE WATER RESOURCES CENTERS OF THE THIRTEEN WESTERN STATES, FINAL REPORT—PROJECT C-2194, WATER RESOURCES PLANNING AND SOCIAL GOALS: CONCEPTUALIZATION TOWARD A NEW METHODOLOGY 9-32, 45-49 (1971).

43. See, e.g., G. Allison, *ESSENCE OF DECISION* (1971); Wildavsky, *The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting*, 26 PUB. AD. REV. 292 (1966) [hereinafter cited as *Political Economy*].

44. H. Brooks, *A Framework for Science and Technology Policy*, vol. SMC-2 IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS, No. 5, at 584, 586 (Nov. 1972).

45. See B. ACKERMAN, *supra* note 29. Professor Ackerman makes a useful start toward such understanding in Chapters 10, 11, and 14.

ing what such means entail. There is no "spook . . . which posits values in advance."⁴⁶

The fluid character of means-ends relationships has long been postulated,⁴⁷ and I have elsewhere argued that it ordinarily describes the actual situation not only during the process of choice but in its implementation as well.⁴⁸ Indeed, I would hypothesize that most of the crucial environmental choices confronting industrialized nations in the last third of the 20th century will be choices that significantly shape and do not merely implement those nations' values with respect to nature and wilderness. Such choices will do more than generate a distribution of pay-offs and penalties to the persons affected in terms of their preexisting yardsticks of cost and benefit. Choices of this type will also greatly alter the experiences available to the affected persons, the concomitant development of their preferences, attitudes, and cost-benefit conceptions over time, and hence their character as a society of persons interacting with one another and with the natural order.⁴⁹

The hypothesis of such means-ends fluidity may, however, say little more than that the choice and implementation of means have some "feedback" effects upon the chooser's ends.⁵⁰ Indeed, the fluidity hypothesis seen in terms of feedback effects renders systematic analysis all the more valuable as a means of bringing ends to light, and all the more essential inasmuch as wholly intuitive approaches to decision might overlook the means-ends complexity that a more rigorous investigation could help to illuminate.⁵¹

The need again is not for an abandonment of rigor and precision but rather for its enrichment—this time by encouraging closer study of the range of psychological and sociological mechanisms, including

46. *Political Economy*, *supra* note 43, at 308.

47. The appearance of this notion in the policy science literature may be traced to Lindblom, *The Science of Muddling Through*, PUB. AD. REV. 79 (1959), but it was of course noted much earlier by Mill, Dewey and others.

48. See *Policy Science*, *supra* note 21, at 99-100; *Technology Assessment*, *supra* note 23, at 634-35, 642-50.

49. This theme is of course a familiar one in Marxist thought, see, e.g., V. CHILDE, *MAN MAKES HIMSELF* (1936), though it is by no means alien even to English liberalism, see, e.g., JOHN STUART MILL ON BENTHAM AND COLERIDGE 72-74 (F. Leavis ed. 1950). The usual Marxist analysis is that individuals and societies are transformed by entering into the altered patterns of production created by new technologies. The sort of transformation contemplated here includes the latter but may also go deeper, for it may involve a radical reshaping of the constitutive elements (e.g., physical characteristics, mental capacities, ultimate ends and self-conceptions) of human identity itself. Developing a typology of modes, both direct and indirect, through which technologies of various types (e.g., productive, informational, biomedical) can "reconstitute" humanity is beyond the scope of this essay.

50. See *Bastard Science*, *supra* note 41, at 217. The hypothesis may also involve a statement that "values" and "ends" are not "things out there" but merely conventional summaries of how people in fact behave.

51. See *Technology Assessment*, *supra* note 23, at 637 n.74.

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self-perception⁵² and cognitive dissonance,⁵³ through which the ends held by individuals and groups are shaped by the questions they ask, the intentions they form, the processes of choice they adopt, and the choices they in fact make. Even the most sophisticated analyses of environmental issues have been oddly oblivious to this problem of variable ends and shifting values,⁵⁴ in part no doubt because our understanding of value formation is so rudimentary. But failing altogether to take this sort of dependence into account can only result in solving an unintended problem while leaving unsolved the problem initially put—rather like firing at a moving target that is connected to the marksman's arm without paying any attention to the link between the two.

Having considered the most serious technical obstacles to "good" environmental analysis and planning, one is therefore forced to conclude that none of these obstacles need prove insuperable: Each calls essentially for further research in preparation for more sensitive analyses and both greater creativity and closer vigilance in whatever environmental analyses are in fact conducted.

B. *Ideological Boundaries*

A final obstacle remains. Policy analysts typically operate within a social, political and intellectual tradition that regards the satisfaction of individual human wants as the only defensible measure of the good, a tradition that perceives the only legitimate task of reason to be that of consistently identifying and then serving individual appetite, preference, or desire.⁵⁵ This tradition is echoed as well in environmental legislation which protects nature not for its own sake but in order to preserve its potential value for man.⁵⁶

52. See, e.g., Bem, *Self-Perception: An Alternative Interpretation of Cognitive Dissonance Phenomena*, 74 *PSYCH. REV.* 183 (1967); Bem, *Inducing Belief in False Confessions*, 3 *J. PERS. & SOC. PSYCH.* 707 (1966); Schachter & Singer, *Cognitive, Social, and Psychological Determinants of Emotional State*, 69 *PSYCH. REV.* 379 (1962); Valins, *Cognitive Effects of False Heart-Rate Feedback*, 4 *J. PERS. & SOC. PSYCH.* 400 (1966).

53. See L. FESTINGER, *A THEORY OF COGNITIVE DISSONANCE* (1957).

54. Even those studies, such as Wildavsky's *Political Economy*, *supra* note 43, which recognize that goals are not "given" but emerge in the process of analysis and choice, strangely ignore the dependence of ends on the means actually chosen and implemented and on the experiences that result.

55. See M. HORKHEIMER, *ECLIPSE OF REASON* 3-57 (1947).

56. In National Environmental Policy Act of 1969 (NEPA), § 101(b), 42 U.S.C. § 4331(b) (1970), Congress defined the goals of national environmental policy as follows:

In order to carry out the policy set forth in this chapter, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may—

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

By treating individual human need and desire as the ultimate frame of reference, and by assuming that human goals and ends must be taken as externally "given" (whether physiologically or culturally or both) rather than generated by reason, environmental policy makes a value judgment of enormous significance. And, once that judgment has been made, any claim for the continued existence of threatened wilderness areas or endangered species must rest on the identification of human wants and needs which would be jeopardized by a disputed development. As our capacity increases to satisfy those needs and wants artificially, the claim becomes tenuous indeed.

Consider again the plastic trees planted along a freeway's median strip by Los Angeles county officials. If the most sophisticated application of the techniques of policy analysis could unearth no human need which would, after appropriate "education," be better served by natural trees, then the environmental inquiry would be at an end. The natural trees, more costly and vulnerable than those made of plastic, would offer no increment of satisfaction to justify the added effort of planting and maintaining them.

To insist on the superiority of natural trees in the teeth of a convincing demonstration that plastic ones would equally well serve human purposes may seem irrational. Yet the tendency to balk at the result of the analysis remains. There is a suspicion that some crucial perspective has been omitted from consideration, that the conclusion is as much a product of myopia as of logic.

II. Beyond Human Wants: A New Rationale for Environmental Policy

What has been omitted is, at base, an appreciation of an ancient and inescapable paradox: We can be truly free to pursue our ends only if we act out of obligation, the seeming antithesis of freedom. To be free is not simply to follow our ever-changing wants wherever they might lead. To be free is to choose what we shall want, what we shall value,

(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

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and therefore what we shall be.⁵⁷ But to make such choices without losing the thread of continuity that integrates us over time and imparts a sense of our wholeness in history, we must be able to reason about what to choose—to choose in terms of commitments we have made to bodies of principle which we perceive as external to our choices and by which we feel bound, bodies of principle that can define a coherent and integrative system even as they evolve with our changing selves.⁵⁸

To deny the existence of such bodies of principle is fashionable, but it is not inevitable. However obvious, it is worth recalling that most of the great philosophical systems of our own past—those of Plato and Aristotle, of Aquinas and the Scholastics, of Hegel and the Idealists—were grounded in the view that the highest purpose of human reason is to evolve a comprehensive understanding of mankind's place in the universe, not merely to serve as a detector of consistency and causality and thus as an instrument for morally blind desire. "The emphasis," as Horkheimer reminds us, "was on ends rather than on means."⁵⁹ It is only recently that the concept of reason as calculation without content became central in the West—that reason began to liquidate itself "as an agency of ethical, moral, and religious insight."⁶⁰ Unless we are to remain in the shadow of that intellectual eclipse, we cannot simply assume that we must stand mute when confronting the ultimate question of whether we want our children, and their children's children, to live in, and *enjoy*, a plastic world.

The notion that nature in particular embodies values apart from its usefulness in serving man's desires is familiar even in the Western post-Enlightenment tradition. Kant, for example, taught that a propensity to exploit or destroy nonhuman and inanimate nature might violate a person's duty to himself.⁶¹ Such utilitarian philosophers as

57. Cf. Frankfurt, *Freedom of the Will and the Concept of a Person*, 68 J. PHIL. 5, 7-14 (1971).

58. See *Technology Assessment*, *supra* note 23, at 652-54. As I sought to show in *Technology Assessment*, such reasoned commitments can be shaped only in communities of persons whose shared experiences and understandings facilitate a common groping toward communal ends. See also R. NISBET, *THE QUEST FOR COMMUNITY* 229-32, 235-37, 241-47, 264-71, 276-79 (1953). This is so in part for contingent reasons—because it seems unlikely in this period of history that the search for ends can generate fruitful and convincing conclusions when pursued by isolated individuals—and in part as a matter of definition, because the wholeness that in fact seems threatened by freedom in the choice of ends is wholeness among persons (community) as well as wholeness over time (continuity). See *Technology Assessment* at 651 n.118.

59. M. HORKHEIMER, *ECLIPSE OF REASON* 5 (1947).

60. *Id.* at 18.

61. I. KANT, *THE METAPHYSICAL PRINCIPLES OF VIRTUE* §§ 16-17, at 105-06 (J. Ellington transl. 1964). ("A propensity to the bare destruction . . . of beautiful though lifeless things in nature is contrary to man's duty to himself. For such a propensity weakens or destroys that feeling in man . . . which . . . does much to promote a state of sensibility favorable to morals . . .")

Bentham advanced a related view, perceiving human obligations as extending to all entities capable of experiencing pleasure and pain.⁶² And the contemporary philosopher John Rawls, after restricting his own theory of justice to the human sphere,⁶³ went on to assert that it is "[c]ertainly . . . wrong to be cruel to animals and the destruction of a whole species can be a great evil."⁶⁴ Concluding that a correct conception of man's relation to nature "would seem to depend upon a theory of the natural order and our place in it," Rawls has exhorted metaphysics to work out a world view suited to this purpose, identifying and systematizing "the truths decisive for these questions."⁶⁵

The task which Rawls thereby defined will not easily be accomplished, either as an intellectual matter or as an institutional one. From the perspective of a social order in which law has come to be justified either in purely formal, positivist terms (as the command of the recognized sovereign),⁶⁶ or in terms of a projected tendency to maximize aggregate human satisfaction over time,⁶⁷ or in terms of a contractarian conception of justice as fairness to other human beings,⁶⁸

62. See J. BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION, ch. XVII, § 1, ¶ 4, at 273 n.330 (Doubleday ed. 1961). Bentham explicitly extends utilitarian ethics to man's relationship with lower animals:

But is there any reason why we should be suffered to torment [animals]? Not any that I can see. Are there any why we should *not* be suffered to torment them? Yes, several. . . . The day has been, I grieve to say in many places it is not yet past, in which the greater part of the species, under the denomination of slaves, have been treated by the law exactly upon the same footing as, in England for example, the inferior races of animals are still. The day *may* come, when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny. The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor It may come one day to be recognized, that the number of the legs, the villosity of the skin, or the termination of the *os sacrum*, are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or, perhaps, the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose the case were otherwise, what would it avail? The question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?

Id. at 381.

Research indicating that plants display physiological reactions analogous to the "pain" reactions of animals would provide a theoretical basis for extending Bentham's theory to the plant kingdom. See pp. 1344-45 *infra*.

63. J. RAWLS, A THEORY OF JUSTICE 512 (1971).

64. *Id.*

65. *Id.* See also Hampshire, *Morality and Pessimism*, THE NEW YORK REVIEW, Jan. 25, 1973, at 26.

66. See, e.g., Kelsen, *The Pure Theory of Law and Analytical Jurisprudence*, 55 HARV. L. REV. 44, 59 (1941). ("To say that an individual is legally obligated to observe certain conduct means that a legal norm provides a sanction for contrary behavior, a delict.")

67. See, e.g., J. BENTHAM, *supra* note 62, ch. XIII, § 1, ¶ 1, at 162. ("The general object which all laws have, or ought to have, in common, is to augment the total happiness of the community")

68. See, e.g., J. RAWLS, *supra* note 63, at 350-55.

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the elaboration of human obligations to nature is likely to appear idiosyncratic at best and incoherent at worst. Although legislators and jurists might concede the appeal of an ecological or evolutionary theory which could suggest a conceptual basis for extrapolating beyond the homocentric perspective,⁶⁹ they would undoubtedly resist efforts to incorporate any such extrapolation into a system of legal protection. The widely held view that law exists for the purpose of ordering human societies, and for that purpose alone, may well prove an unassailable article of faith.

Given the obvious difficulty of progressing against the grain of such a faith, it seems appropriate to assess the importance of the task. How serious is the distortion occasioned by an entirely homocentric, want-regarding vision? In precisely what ways—apart from the basic affront to freedom described earlier—is it troublesome to view nature solely in terms of potential human satisfaction? In short, what's wrong with plastic trees, if that's what people really want?

A. *The Distortions Implicit in a Homocentric, Want-Oriented Perspective*

Theoretically at least, policy analyses and legislative provisions can be so calibrated as to be sensitive to, and then to accommodate, whatever values individuals are capable of discerning.⁷⁰ Yet it does not follow, simply because all values susceptible to human perception may thus be formally "included" in our designs, that an institutional system or an analytic technique which relentlessly treats all such values as manifestations of individual human preference will prove satisfactory. To reach such a conclusion would require another premise: that the act of characterizing all values as expressions of human preference does not affect their content or distort their perception. It is a premise that does not withstand scrutiny. Treating all values as based on personal preferences results in a major shift of focus: Attention is no longer directed to the ostensible content of the value but rather to the fact that it is a more or less abstracted indicium of self-interest. Even if one ultimately chooses the same actions under such a shift of focus, one may well end with the feeling that one has chosen them not out of obligation or for their own sake, but because their opportunity cost in terms of one's range of personal interests was low

69. An evolutionary theory might offer, in Rawls' terms, "a theory of the natural order and our place in it." J. RAWLS, *supra* note 63, at 512.

70. See p. 1319 *supra*.

enough, thereby distorting the meaning of the choice and of the actions chosen.⁷¹

To offer a simple illustration, suppose a person feels an obligation to protect a wilderness area from strip mining. The initial perception of that obligation is likely to take the form of sympathy for the wildlife and vegetation which would be destroyed or displaced.⁷² Indeed, the perceived obligation may display at least the rudiments of an internal structure: Killing "higher" animal life may seem unjustifiable except for compelling reasons (to sustain, or to avert a direct threat to, human life, for instance); destroying plant life may seem improper if destruction can be avoided without "undue" cost. Certain categories of harm which might leave human civilization intact while threatening the global eco-system as a whole—severe radioactive contamination of the oceans, for instance—may seem wrong regardless of the strength of the countervailing human interest.

If the sense of obligation prompts the individual to undertake some concrete effort on behalf of the environment, such as making an adverse response to an environmental survey, initiating a suit to enjoin the strip mining, or advancing an argument in favor of preservation, a subtle transformation is likely to be occasioned by the philosophical premises of the system in which the effort is undertaken. The felt obligation will be translated into the terminology of human self-interest: It may be said that future generations will be deprived of contact with wildlife; that the aesthetic satisfaction of certain individuals will be diminished; that other recreational areas will become overcrowded. Like Kant, proponents of environmental protection will, at best, couch their disapproval of human mistreatment of nature in terms of the indirect consequences for mankind.⁷³

While the environmentalist may feel somewhat disingenuous in taking this approach, he is likely to regard it as justified by the demands of legal doctrine and the exigencies of political reality.⁷⁴ What the environmentalist may not perceive is that, by couching his claim in terms of human self-interest—by articulating environmental goals wholly in terms of human needs and preferences—he may be helping

71. See T. NAGEL, *THE POSSIBILITY OF ALTRUISM* (1970). The necessity to relate altruistic impulses to endogenous needs or wants of the object of altruism was recognized by Rawls. See J. RAWLS, *supra* note 63, at 189. ("There is . . . a peculiar feature of perfect altruism that deserves mention. A perfect altruist can fulfill his desire only if someone else has independent, or first-order, desires.")

72. See generally Stone, *supra* note 14, at 490.

73. See I. KANT, *supra* note 61, § 17, at 106. See also I. KANT, *Duties Towards Animals and Spirits*, in *LECTURES ON ETHICS* 239 (L. Infield transl. 1963). ("Animals are not self-conscious and are there merely as a means to an end. That end is man.")

74. See Stone, *supra* note 14, at 490.

to legitimate a system of discourse which so structures human thought and feeling as to erode, over the long run, the very sense of obligation which provided the initial impetus for his own protective efforts.

This metamorphosis of obligation into self-interest and personal preference ironically echoes aspects of Mill's utilitarian theory. Mill argued that the sense of moral obligation was a subjective feeling developed through learning and association from the primary responses of pain aversion and pleasure maximization.⁷⁵ He discounted the possibility that obligation, when perceived as an accretion of such responses, might ultimately lose its compelling force and dissolve into unmitigated self-aggrandizement; in Mill's view, the impulse toward conformity and other social pressures would insulate ethical feelings from any such reductionist tendency.⁷⁶ However justifiable Mill's faith in the efficacy of communal reinforcement in the context of interpersonal obligation, the phenomenon clearly plays a less important role when the occasion of an ethical impulse is not a member of the human community but a natural object. Despite impassioned efforts by ecologists to suggest the contrary,⁷⁷ the best interests of individual persons (and even of future human generations) are not demonstrably congruent with those of the natural order as a whole, even if such a congruence can be established as between individuals and the human communities in which they live. Indeed, individually or communally defined human interests may often be at odds with the primal ethical impulse—the sense of duty beyond self—that gives passion and conviction to many who see elements of the inviolable in nature. In this situation, communal reinforcement, far from impeding the transformation of ethical obligation into a category of self-interest, may actually accelerate the process.

To return to our example, once obligation has been transformed into a mere matter of personal preference, the tendency is inevitable to compare the value of wilderness with the value of strip mined coal in terms of self-interest. From there, it is but a short step to an even more blatantly reductionist approach: In order to insure that the comparison is "rational," the two values will almost certainly be translated into smoothly exchangeable units of satisfaction, such as dollars.⁷⁸ While certain discontinuities may still be recognized—destruction of *all* wilderness areas may not be deemed worth even an infinite

75. See J.S. MILL, *UTILITARIANISM* 433-34 (Dolphin ed. 1961).

76. *Id.* at 434.

77. See, e.g., B. COMMONER, *THE CLOSING CIRCLE* 41-45, 216-49, 299-300 (1971); P. EHRLICH & A. EHRLICH, *POPULATION, RESOURCES, ENVIRONMENT* 1-3, 157, 182 (1970).

78. See *Policy Science*, *supra* note 21, at 84.

supply of coal—they will tend to be gradually eroded by the pressure toward analytic uniformity.

The translation of all values into homocentric terms thus creates two distortions: First, an inchoate sense of obligation toward natural objects is flattened into an aspect of self-interest; second, value discontinuities tend to be foreshortened. It is important to emphasize again that these distortions do not follow as a necessary result from the theoretical premises of policy analysis. Although Aaron Wildavsky suggested in a 1966 critique that cost-benefit techniques structurally presuppose the individualistic premise that only personal preferences matter,⁷⁹ it is obviously possible to compute the costs of an activity in any terms one wishes or to impose whatever nonindividualistic constraint is deemed important. There is nothing in the logic of analytic techniques (or, for that matter, the logic of interest identification which precedes legislative enactment) that limits the use of such methods to the tradition of liberal individualism in any of its diverse forms.

The distortion occurs rather because the process of interest identification, as it is presently employed, interacts in a crucial way with the content of the interest being identified. The identification takes place in the context of a system of attitudes and assumptions which treat human want satisfaction as the only legitimate referent of policy analysis and choice. These assumptions, and the desire for analytic clarity which accompanies them, together exert an enormous reductionist pressure on all values which would otherwise seem incommensurable with a calculus of individual human wants. Thus the distortion results not from a logical flaw in the techniques of policy analysis but rather from what I have elsewhere described⁸⁰ as the ideological bias of the system in which such analysis is imbedded, a system that has come to treat the human will and its wants as the center around which reason as calculation must revolve.

B. *The Roots of Our Current Posture*

No one should suppose that this bias is a shallow one or that it can readily be eliminated. Its roots lie deep within the Western philosophical and theological tradition. It is important, therefore, to describe briefly certain aspects of this tradition even at the inevitable expense of simplification. The dominant religious consciousness of

79. See *Political Economy*, *supra* note 43, at 294, 298.

80. See *Policy Science*, *supra* note 21, at 85.

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preindustrial Western societies, representing the confluence and culmination of strands that began at points as diverse as the Near Eastern salvation faiths and early Greek monotheism, is the consciousness of transcendence.⁸¹ That consciousness characteristically perceives God as an other-worldly entity—one standing apart from, and above, the world. Genesis proclaims the sovereignty of God over the physical universe; it is but a small step to infer the dominion of man, as God's representative on earth, over all of life. In a seminal lecture delivered before the American Association for the Advancement of Science in 1966, Lynn White pointed to the Judeo-Christian tradition of transcendence as the underlying basis for what he then perceived as our ecological crisis.⁸² That thesis has been much criticized as overdrawn, but it deserves elaboration in the present context.

Any society whose dominant consciousness posits the radical dichotomy between God and world, between heaven and earth, and (in the individualized manifestations of these dualities) between soul and body, is apt to regard natural and social phenomena as entirely appropriate objects of human manipulation and will, at least insofar as humanity is viewed by that society as uniquely participating in the divine. So long as man is thought to stand apart from nature, and the universally divine in individual man apart from his more particular manifestation as a concrete social being, the manipulative stance toward the world of physical processes and social structures, expressed respectively through the media of "technology" and "public policy," is likely to prove invincible.⁸³ And, as Max Weber has argued, there exists a natural correspondence between manipulation as a mode of conduct and instrumental rationality—the rationality of matching means to ends—as a mode of thought.⁸⁴ If man is pilot of the lower orders, it is instrumental reason that charts his way.

The view that White's thesis was misguided rests on a facet of Judeo-Christian theology whose centrality he failed to recognize. In *Summa Theologiae*, Aquinas argued that man excels all animals not by virtue of his power but rather by virtue of the faculty of reason

81. See, e.g., R. BELLAH, *Transcendence in Contemporary Piety*, in *BEYOND BELIEF: ESSAYS ON RELIGION IN A POST-TRADITIONAL WORLD* 196-208 (1970); P. TILlich, *SYSTEMATIC THEOLOGY* 360 (1967); L. White, *The Historical Roots of Our Ecologic Crisis*, 155 *SCIENCE* 1203-05 (1967), in *MACHINA EX DEO: ESSAYS IN THE DYNAMISM OF WESTERN CULTURE* 75 (1968).

82. See L. White, *supra* note 81.

83. Some aspects of this thesis parallel the thought and writing of the Frankfurt School. See generally M. JAY, *THE DIALECTICAL IMAGINATION* (1973).

84. See, e.g., M. WEBER, *THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM* 26-27, 75-78, 155-74 (T. Parsons transl. 1958).

through which he participates in the kingdom of heaven;⁸⁵ White's account seemingly left no room within the Judeo-Christian mainstream for a divinely inspired stewardship of the sort suggested by Aquinas and so eloquently realized in the thought of St. Francis.⁸⁶ But, if this is its limitation, White's thesis becomes chillingly plausible in the period when the rise of science heralds the death of God. For once one accepts the Baconian creed that scientific understanding can only mean technological power over nature, one can no longer hope for inspiration from beyond;⁸⁷ once reason is no longer perceived as guided by the divine, it can no longer serve as master and must be relegated to the place of slave. It is through this thoroughgoing secularization of transcendence⁸⁸ that Hume's dictum—that "reason is, and ought only to be the slave of the passions"⁸⁹—is fully realized; for when God is absent, the "grand manipulator" must move the world not according to values divinely revealed but in accord with ends ultimately private to each person and empty of intrinsic significance because not derived through any dialogue beyond the self.

In a classic reply to Sartre's heroic effort to find authenticity in this very emptiness,⁹⁰ Heidegger saw in that existentialist stance only the haunting specter of the human will willing itself in the void.⁹¹ The age inaugurated for philosophy by Kant and carried to its relentless conclusion by Nietzsche—the age of human will as the center of reality—seemed to Heidegger to lack a center, a point of reference from which the works of the will might be assessed. So it is that instrumental rationality, the shadow in human thought of the manipulative pose inherent in transcendent consciousness, is reduced to the endless striving after ever-changing ends that has come to characterize much of contemporary life. So it is that progress becomes a frenzied caricature of itself, and that human nature, itself but a part of the natural order properly subject to human will, becomes subject to alteration without moral constraint as Yeats' vision becomes reality: The center will not hold.

85. T. AQUINAS, *SUMMA THEOLOGIAE*, pt. I; Quest. 3, Art. 1; Quest. 96, Art. 2 (Blackfriars transl. 1963).

86. White pointed to Saint Francis of Assisi as a model, praising his reverence for Brother Ant and Sister Fire, but sought to show that the Franciscan Order was profoundly heretical and did not grow naturally in the soil of Western Christianity. L. White, *supra* note 81, at 1206-07.

87. See W. LEISS, *THE DOMINATION OF NATURE* 45-71 (1972).

88. See, e.g., K. MARX, *On the Jewish Question*, in *WRITINGS OF THE YOUNG MARX ON PHILOSOPHY AND SOCIETY* 216-48 (L. Easton & K. Guddat transl. and eds. 1967). The theme of secularized transcendence and its significance in the liberal state is thoughtfully elaborated in R. UNGER, *KNOWLEDGE AND POLITICS* (Free Press, forthcoming 1974).

89. D. HUME, *A TREATISE OF HUMAN NATURE*, bk. II, pt. 3, § iii (Oxford ed. 1958).

90. J.P. SARTRE, *EXISTENTIALISM AND HUMANISM* (P. Mairret transl. 1948).

91. M. HEIDEGGER, *ÜBER DEN HUMANISMUS* (1949).

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It is to the secularization of transcendence that we may most instructively correspond the transition from Aquinas and the Scholastics to moral theorists in the tradition of contemporary liberal individualism. Treating the work of John Rawls as representative,⁹² one may observe that the basic structure of his contractarian argument—which seeks justice and just institutions in the arrangements he claims rational persons would freely choose under a veil of ignorance as to the positions they will occupy in the world they are designing—presupposes an “individualistic conception according to which the best that can be wished for someone is the unimpeded pursuit of his own path, provided it does not interfere with the rights of others.”⁹³ While this concept allows Rawls to elevate the sentiment of justice from its status in utilitarianism as a “socially useful illusion”⁹⁴ to an antecedent principle of social behavior, it does not implicate directly man’s relation to nature. As Rawls admits, duties imposed on persons by the capacity of animals to experience pain and pleasure fall outside the ambit of any contractarian doctrine.⁹⁵

In Rawls’ system, the good is no longer to be derived from first principles by divinely inspired reason or by any rational faculty but is the contractual composite of arbitrary (even if comprehensible) values individually held and either biologically or socially shaped. As was implicit in Kant, reason must be silent when confronting the substantive and lonely task of commitment to the ends and values themselves.

The structure of the Rawlsian argument thus corresponds closely to that of instrumental rationality; ends are exogenous, and the exclusive office of thought in the world is to ensure their maximum realization, with nature as raw material to be shaped to individual human purposes. Thus when Rawls posits that a correct conception of man’s relations to nature depends upon “a theory of the natural order and our place in it,”⁹⁶ he calls for a moral conception of ecological obligation which cannot be formulated within the tradition of his own thought. For the premises of secularized transcendence

92. J. RAWLS, *supra* note 63.

93. Nagel, *Rawls on Justice*, 82 PHIL. REV. 220, 228 (1973).

94. J. RAWLS, *supra* note 63, at 28.

95. Because the parties to the initial contract are assumed to be ignorant of their particular conceptions of the good, *id.* at 137, they will seek only to maximize selfishly their shares of primary social goods, *id.* at 142-44, such as income, wealth, liberty, power and opportunity, *id.* at 62. While the parties may seek “contractual” protection for the environment in order to ensure a continuing flow of primary goods, *see generally id.* at 137, they will ignore the noneconomic value of nature: Protecting the environment for reasons other than enhancing its productivity will not lead to higher individual quotients of primary goods.

96. J. RAWLS, *supra* note 63, at 512.

deny the existence of anything sacred in the world and reduce all thought to the combined operations of formal reason and instrumental prudence in the service of desire. The only entities that can "count" in a calculus of end-maximization, whether utilitarian or contractarian, are those entities that possess their own systems of ends or at least the capacity to experience pleasure and pain,⁹⁷ and nothing outside the private ends and pleasures of such beings can come to the rescue of a philosophy devoted solely to their pursuit.

C. *The Alternative of Immanence*

How such a rescue might proceed is not easily imagined. Those strands of our legal, intellectual and religious heritage that once seemed to point the way toward reason as an agent of moral illumination now appear as dust, the task of reassembling them into a coherent fabric seemingly beyond our grasp. Despairing of anything better—frightened with Pascal by "the eternal silence of these infinite spaces"⁹⁸ but unable with him to embrace God—we may be tempted to accept a perfected form of formal and instrumental thought as marking the perimeter of legitimate aspiration. In so doing we may, as long as we have the courage, recognize the futility of the pursuit after intrinsically empty ends to which we are thereby consigned.

It is worth asking, however, whether such stoic resignation is an inescapable corollary of our contemporary situation. I would not presume to offer anything like a definitive answer, but I will advance a tentative hypothesis: Just as the disintegration of reason detected by Horkheimer⁹⁹ has its roots in a religious transformation, the reintegration of reason and moral perception may be augured by the dawning of environmental awareness in contemporary law and culture.

Recall the observation that environmentalists often feel disingenuous when they seek to rationalize their position in terms of a homocentric calculus, even one that gives more than the usual weight to the interests of future human generations or one that takes an unusually risk-averse posture in assessing available options. Such environmentalists "want to say something less egotistic and more emphatic, but the prevailing and sanctioned modes of explanation in our society are not quite ready for it."¹⁰⁰

Those modes of explanation are not *quite* ready, but it is hard not

97. See J. BENTHAM, *supra* note 62, ch. XVII, § 1, ¶ 4, at 273 n.330.

98. B. PASCAL, *PENSÉES* 95 (A. Krailsheimer transl. 1966).

99. See M. HORKHEIMER, *supra* note 59.

100. Stone, *supra* note 14, at 490.

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to observe a convergence of trends which suggests a growing sense in contemporary industrialized societies that there is in fact something sacred in the natural,¹⁰¹ a sense that Edward Shils has rightly argued can be wholly secular.¹⁰² One sees such a notion, at the most romantic extreme, in the fond longing for an imagined past of an unmechanized, decentralized, nonhierarchical, anti-technological community of man in nature.¹⁰³ One sees essentially the same notion, at the opposite social pole, in the idea (closely related to "natural law") that modern science itself, and the unfolding structural truths it reveals about the natural order and the human condition,¹⁰⁴ can somehow be the source of moral wisdom—the idea that existence, deeply and richly enough understood, might somehow imply sanctity.¹⁰⁵

There would be great danger, however, in transforming these fragments of what might be called "ecological" or "structural" awareness into the philosophical and legal scaffolds of an even braver new world. For the sanctification of nature or of "natural principles," even if achievable and even if effective in actually protecting natural systems,¹⁰⁶ would simply return us to the religious tradition that preceded transcendence, the tradition in which the divine, far from an other-worldly essence, was immanent in all that is.¹⁰⁷ It was the tradition of immanence which was exemplified by the pantheistic belief that all objects and places in the natural world possessed guardian spirits demanding propitiation as security against unspeakable harm.¹⁰⁸ To restore anything like pagan animism would be to risk sanctifying the present, with all its faults and inadequacies. Treating the existing order as sacred (or, in a secularized version of immanence, as immutable) might well relegate to permanent subjugation and

101. See, e.g., Darling, *Man's Responsibility for the Environment*, in *BIOLOGY AND ETHICS* 119 (F. Ebling ed. 1969).

102. Shils, *The Sanctity of Life*, *ENCOUNTER*, Jan. 1967, at 39, 41, 42.

103. See, e.g., N. BROWN, *LIFE AGAINST DEATH* 236 (1959); C. REICH, *THE GREENING OF AMERICA* (1970); T. ROSZAK, *WHERE THE WASTELAND ENDS* (1972).

104. See, e.g., H. GARDNER, *THE QUEST FOR MIND: PIAGET, LÉVI-STRAUSS, AND THE STRUCTURALIST MOVEMENT* (1972). See also V. FERKISS, *TECHNOLOGICAL MAN* 245-72 (1969); *INTRODUCTION TO STRUCTURALISM* (M. Lane ed. 1970).

105. It may have been a fusion of the romantic and the scientific strands of this structuralist aspiration that inspired the oneness Lévi-Strauss glimpsed as the "essence of life beyond thought and beyond society," revealed "in the wink of an eye, heavy with patience, serenity and mutual forgiveness, that sometimes through an involuntary understanding, one can exchange with a cat." C. LÉVI-STRAUSS, *TRISTES TROPIQUES* 479 (1955).

106. For an argument that "the belief that nature is sacred can tell against attempts to preserve it," see Passmore, *Removing the Rubbish*, *ENCOUNTER*, Apr. 1974, at 11, 13.

107. See generally R. BELLAH, *Religious Evolution*, in *BEYOND BELIEF: ESSAYS ON RELIGION IN A POST-TRADITIONAL WORLD*, *supra* note 81, at 23, 27; H. WOLFSON, *Spinoza and the Religion of the Past*, in *RELIGIOUS PHILOSOPHY: A GROUP OF ESSAYS* 246-49 (1961).

108. See M. ELIADE, *THE FORGE AND THE CRUCIBLE* 99-100 (S. Cottin transl. 1962); H. FRANKFORT, *KINGSHIP AND THE GODS* 342-44 (1948).

deprivation those many who are not now among the privileged, freezing the social evolution of humanity into its contemporary mold. It would thus be as misguided to act on the premise that plastic trees are "bad" simply because they are "unnatural" as I have argued it would be mistaken to act as though there could be no objection to plastic trees so long as persons have come to like them. Unless evolving human consciousness and will are recognized as legitimate and indeed vital parts of the natural order, there can exist only sterility and paralysis, negating all possibility of critique and progress.

D. *A Possible Synthesis*

To be free, it seems, is to choose what we shall value;¹⁰⁹ to feel coherence over time and community with others while experiencing freedom is to choose in terms of shared commitments to principles outside ourselves;¹¹⁰ but to make commitments without destroying freedom is to live by principles that are capable of evolution as we change in the process of pursuing them.¹¹¹ If transcendence degenerates ultimately into choice without commitment to principle and if immanence ultimately disintegrates into principles incapable of change, what must be sought is a synthesis of immanence with transcendence¹¹²—of sacred observer with grand manipulator. Such a synthesis requires the sanctification neither of the present nor of progress¹¹³ but of *evolving processes of interaction and change*—processes of action and choice that are valued for themselves, for the conceptions of being that they embody, at the same time that they are valued as means to the progressive evolution of the conceptions, experiences, and ends that characterize the human community in nature at any given point in its history. As those conceptions, experiences, and ends evolve through the processes made possible by a legal and constitutional framework for choice, the framework itself—the society's idealized conception of how change should be structured—may be expected to change as well. One might think of the evolving framework as a multidimensional spiral along which the society moves by successive stages, according to laws of motion which themselves undergo gradual

109. See pp. 1326-27 *supra*.

110. See p. 1327 *supra*.

111. See pp. 1337-38 *supra*.

112. See *Technology Assessment*, *supra* note 23, at 659 n.143; cf. B. LONERGAN, *METHOD IN THEOLOGY* 110-11 (1972).

113. Contemporary writers who seek to sanctify the very fact of change itself and who call for heightened receptivity to change as such, see, e.g., D. SCHON, *TECHNOLOGY AND CHANGE* 189-218 (1967); cf. D. SCHON, *BEYOND THE STABLE STATE* (1971); A. TOFFLER, *FUTURE SHOCK* (1970), would, I fear, poison all hope of a successful union between the conflicting poles of religious impulse. For sanctifying change as such escapes none of the deepest evils of secular transcendence or of the moral vacuum it inspires.

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transformation as the society's position on the spiral, and hence its character, changes. To avoid the spiral's premature closure upon any necessarily tentative set of ideals and expectations, the framework for choice must incorporate procedures for its own evolution. But the framework for choice must begin somewhere, and, like all beginnings, this one will seem, to some, to have come from no place. The only solace must be Wittgenstein's: "Giving grounds [must] come to an end sometime. But the end is not an ungrounded presupposition: It is an ungrounded way of acting."¹¹⁴

The framework for choice to which I believe we should initially commit ourselves must have a double aspect. Although it must be selected in light of its likely consequences, it cannot be designed simply to assure that the journey will bring us to some preconceived destination. For no such destination is describable in advance, and in no event could we expect a purely instrumental strategy to liberate us from the grip of instrumentalism and manipulation in which we feel trapped. The "way of acting" to which we commit ourselves must therefore be a process valued in large part for its intrinsic qualities rather than for its likely results. Such a conception of process as more than instrumental should not seem wholly alien. In many realms of human experience, process is intuitively and widely felt to matter in itself: Kicking a dog is seen as different from tripping over it; lynching an innocent victim is not thought to be the same as erroneously convicting a person after a fair trial; there are respects in which the sound of music produced by a computer cannot be equated with the human enterprise of a living orchestra.¹¹⁵ In the environmental area in particular, given the absence of any final system of ends which either could or should command assent, we should be capable of perceiving intrinsic significance—sanctity, if you will—in the very principles, however variable, according to which we orchestrate our relationships with one another and with the physical world of which we are a part.¹¹⁶

We do not begin, however, wholly without a conception of the distant horizons toward which our processes will grope. Along those horizons, at the very least, one must imagine that change will remain

114. L. WITTGENSTEIN, ON CERTAINTY § 110 (G. Anscombe & G. von Wright eds. 1969).

115. See *Policy Science*, *supra* note 21, at 79-83.

116. This attribution of intrinsic significance to process cannot be achieved simply by injecting procedural variables into instrumental analyses. Apart from the complex circularity inherent in the fact that any analysis must become part of the process it has helped to shape, *see id.* at 83, *Technology Assessment*, *supra* note 23, at 633 n.54, any such strategy wrongly assumes that change can be achieved by thought alone and simultaneously forgets that process must remain in part the end and not simply the means.

forever possible, and that no single conception or species will perpetually dominate according to an iron rule. Partly because it seems plausible to believe that the processes we embrace must from the beginning prefigure something of that final vision if the vision itself is to be approximated in history, and partly because any other starting point would drastically and arbitrarily limit the directions in which the spiral might evolve, it follows that the process with which we start should avoid a premise of human domination, or indeed a premise of the total subservience of any form of being to any other.

If the evolving processes we adopt are somehow to synthesize the ideals of immanence with those of transcendence, it follows also that those processes must embody a sense of reverence for whatever stands beyond human manipulation and its willed consequences, as well as a stance of criticism toward all that is given and a commitment to the conscious improvement of the world. Such a synthesis, it should be clear, must eventually cut across the received categories of "nature" and "culture," for implicit in that classic dichotomy is a denial of any possible union between the immanent and the transcendent. It should not be distressing that this is so, and that traditional conceptions of nature and of the natural will not suffice to capture the necessary objects of our respect and of our sense of obligation. At the most elementary level, after all, the impulse that is felt by many as awe and respect for a vast canyon or a spider's web has much in common with the sense of sanctity felt by others as they stand before the structures at Stonehenge or the Cathedral at Chartres. What differentiates a silent wilderness or a breathtaking monument from a littered campground or a tornado-struck town cannot be summarized in any facile contrast between the works of "man" and those of "nature." To recognize that humanity is a part of nature and the natural order a constituent part of humanity is to acknowledge that something deeper and more complex than the customary polarities must be articulated and experienced if the immanent and transcendent are somehow to be united. At that crossroads, conceptions like harmony, rootedness in history, connectedness with the future, all seem more pertinent than the ultimately conventional concept of "the natural."

III. The First Turns of the Spiral

Like Schiller's mechanics who dare not let the wheels run down while they repair "the living clockwork of the State,"¹¹⁷ or Neurath's

117. F. SCHILLER, ON THE AESTHETIC EDUCATION OF MAN 29 (Snell transl. 1954).

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sailors who must rebuild their ship on the open sea without discerning its ideal design,¹¹⁸ we are condemned to toil in the dimmest light as we feel our way toward the evolution of our conceptions and ideals of the natural order. But if, as we have concluded,¹¹⁹ the spiral that traces such evolution is to reject human domination over other modes of being, then at least its first turns seem within our grasp. At a minimum, we must begin to extricate our nature-regarding impulses from the conceptually oppressive sphere of human want satisfaction, by encouraging the elaboration of perceived obligations to plant and animal life and to objects of beauty¹²⁰ in terms that do not falsify such perceptions from the very beginning by insistent "reference to human interests."¹²¹ Thus environmental impact surveys and statements might make explicit reference to obligations felt toward nature.¹²² Resources might be devoted to improving our technical capacity to incorporate such felt obligations in policy analyses. And legislation might be enacted to permit the bringing of claims directly on behalf of natural objects without imposing the requirement that such claims be couched in terms of interference with human use.¹²³

A related proposal was recently advanced by Christopher Stone, who suggested the appointment of guardians or trustees for objects in the environment¹²⁴ as institutional embodiments of a perceived obligation to treat the world about us with respect, and as symbols of a recognition that persons are not the only entities in the world that can be thought to possess rights. Despite the protests of some that "man . . . can have no duty to any being other than man,"¹²⁵ and that, as a matter of "logic," only human beings can have "rights,"¹²⁶ the fact is that even our own legal system has long recognized entities other than individual human beings—churches, part-

118. Neurath, *Protokollsätze*, 3 ERKENNTNIS 204, 206 (1932).

119. See pp. 1339-40 *supra*.

120. See *id.*

121. Passmore, *supra* note 106, at 19. Professor Passmore, it should be said, takes the opposite view and insists that any ethic elaborating man's relation to land and to the life it sustains be "justified by reference to human interests."

122. NEPA does not today provide a basis for agency determinations on such grounds. On the contrary, policy sections are replete with phrases relating the Act's purpose to human needs, although those needs may be long-range or broadly conceived. Environmental values are expressed in such phrases as "the overall welfare and development of man" (42 U.S.C. § 4331(a) (1970)), "productive harmony" (*id.*), "trustee of the environment for succeeding generations" (*id.* § 4331(b)(1)), "widest range of beneficial uses of the environment without degradation" (*id.* § 4331(b)(3)), and "the maintenance and enhancement of long-term productivity" (*id.* § 4332(2)(C)(iv)) (emphasis added). See also note 56 *supra*.

123. See p. 1317 *supra*.

124. See Stone, *supra* note 14.

125. I. KANT, *supra* note 61, § 16, at 105.

126. Passmore, *supra* note 106, at 19.

nerships, corporations, unions, families, and occasionally even animals¹²⁷—as rights-holders for a wide variety of purposes. Acceptance of the notion that some previously “rightless” entity enjoys legal protection is largely a matter of acculturation.¹²⁸

Yet it remains true that treating a class of entities as rights-holders is consistent with regarding their protected status as a mere juristic convention. Thus, although American law has long accepted the independent juridical status of corporations, no one would suggest today that such entities are anything but legal constructs. No law prohibits the death or dismemberment of corporations on the basis of their intrinsic “right to life.” No jurisprudence rationalizes the

127. A few courts have held that animals themselves enjoy rights under statutes prohibiting animal cruelty. *See, e.g., State v. Karstendiek*, 49 La. 1621, 1624, 22 So. 845, 847 (1897). (“The statute [prohibiting cruelty to animals] is based on ‘the theory, unknown to the common law, that animals have rights which, like those of human beings, are to be protected.’”) Perhaps the most eloquent expression of this view is contained in an opinion written by a Mississippi judge in 1887:

Section 2918 of the Code, under which appellant was indicted, renders it a criminal offence for any person to cruelly beat, abuse, starve, torture or purposely injure certain animals, whether they belong to himself or another. This statute is for the benefit of animals, as creatures capable of feeling and suffering, and it was intended to protect them from cruelty, without reference to their being property, or to the damages which might thereby be occasioned to their owners . . . [S]peaking for myself, I wish to say, that laws and the enforcement or observance of laws for the protection of dumb brutes from cruelty are, in my judgment, among the best evidences of the justice and benevolence of men. Such statutes were not intended to interfere, and do not interfere, with the necessary discipline and government of such animals, or place any unreasonable restriction on their use or the enjoyment to be derived from their possession. The common law recognized no right in such animals, and punished no cruelty to them, except in so far as it affected the right of individuals to such property. Such statutes remedy this defect, and exhibit the spirit of that Divine law, which is so mindful of dumb brutes as to teach and command not to muzzle the ox when he treadeth out the corn—not to plough with an ox and an ass together—not take the bird that sitteth on its young, or its eggs, and not to seethe a kid in its mother's milk. To disregard the rights and feelings of equals is unjust and ungenerous, but to wilfully or wantonly injure or oppress the weak and helpless is mean and cowardly. Human beings have at least some means of protecting themselves against the inhumanity of man—that inhumanity which “makes countless thousands mourn,” but dumb brutes have none. Cruelty to them manifests a vicious and degraded nature, and it tends inevitably to cruelty to men. Animals whose lives are devoted to our use and pleasure, and which are capable, perhaps, of feeling as great physical pain or pleasure as ourselves, deserve for these considerations alone, kindly treatment. The dominion of man over them, if not a moral trust, has a better significance than the development of malignant passions and cruel instincts. Often their beauty, gentleness and fidelity suggest the reflection, that it may have been one of the purposes of their creation and subordination to enlarge the sympathies and expand the better feelings of our race. But, however this may be, human beings should be kind and just to dumb brutes, if for no other reason than to learn how to be kind and just to each other.

Stephens v. State, 65 Miss. 329, 330-32, 3 So. 458-59 (1887) (Arnold, J.).

128. *See Stone, supra* note 14, at 453-56. Arguing for “rights” on behalf of nonhuman entities should not be confused with suggesting that certain nonhuman interests should have absolute priority over conflicting human claims; recognizing rights in a previously rightless entity is entirely consistent with acknowledging circumstances in which such rights might be overridden, just as human rights may themselves come into conflict.

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validity of corporate law in terms of “just” propitiation of the endogenous needs or wants of corporate entities.¹²⁹ It seems likely that contemporary observers would view the independent legal status of environmental objects in essentially the same way that they view the concept of corporate existence. Affording legal rights to endangered species and threatened wilderness areas might thus be regarded as a convenient technique for concentrating congeries of otherwise diffuse aesthetic and ecological concerns ultimately reducible to human interest—in other words, as a useful but quite transparent legal fiction.

Even if this were the most one could hope for, the concept of rights for natural objects would probably represent a valuable doctrinal innovation. Whatever unnecessary threat the “standing” requirement continues to pose to effective environmental action would be avoided.¹³⁰ And procedural devices far less cumbersome than class actions would become available for challenging environmental abuses.¹³¹

But we might plausibly hope for more. At least so long as we remain within empathizing distance of the objects whose rights we seek to recognize, it seems reasonable to expect the acknowledgment of such rights to be regarded as more than fictitious. Thus, protecting cats and dogs from torture on the basis of their desire to be free from pain and hence their right not to be mistreated seems less jarring conceptually than protecting a forest from clear-cutting on the theory that the threatened trees have an inherent “right to life.”

It is not surprising that one of the few pieces of existing federal law aimed unambiguously at protecting nonhuman interests—the Federal Laboratory Animal Welfare Act¹³²—limits its protection to mammals, whose perceptions of pain and discomfort we presume to

129. The legal protection afforded corporations is typically viewed as justifiable only insofar as it serves individual human needs. See, e.g., Rostow, *To Whom and For What Ends Is Corporate Management Responsible*, in *THE CORPORATION IN MODERN SOCIETY* 63-71 (E. Mason ed. 1959). See generally J. RAWLS, *supra* note 63, at 265-74.

130. Under current standing doctrine, a plaintiff cannot challenge an activity as injurious to the environment unless he has suffered or is likely to suffer personal harm as a result thereof. See *United States v. SCRAP*, 412 U.S. 669, 686-89 (1973).

131. For instance, administratively appointed guardians could bring actions to enforce the rights of environmental objects. See generally Stone, *supra* note 14, at 464-73.

132. 7 U.S.C. §§ 2131-55 (1970). See also the Endangered Species Conservation Act of 1969, 16 U.S.C. §§ 668aa-668cc-5 (1970); cf. 18 U.S.C. § 42(c) (1970) (“The Secretary of the Treasury shall prescribe such requirements and issue such permits as he may deem necessary for the transportation of wild animals and birds under humane and healthful conditions, and it shall be unlawful for any person, including any importer, knowingly to cause or permit any wild animal or bird to be transported to the United States, or any Territory or district thereof, under inhumane or unhealthful conditions or in violation of such requirements.”).

be similar to our own.¹³³ In addition to supporting a general hypothesis that the needs of creatures close to man on the evolutionary scale are easier to assimilate into contemporary value systems than are the needs of our more distant relatives, the legislative history of the 1970 amendments to the Act also provides a graphic illustration of the process of anthropomorphic validation: The House committee report proclaims that the purpose of the legislation is to ensure that animals are "accorded the basic *creature comforts* of adequate housing, ample food and water, reasonable handling, *decent sanitation* . . . and adequate veterinary care including the appropriate use of *pain-killing drugs*"¹³⁴ The statutory terms reveal an obvious transference of human values to the nonhuman rights-holders: The words "comfort," "decent sanitation" and indeed "pain" refer to human experiences and perceptions. By incorporating such terms into legislation protecting animals, the draftsmen are equating the perceptions of animals with those of humans; the terminology subliminally reinforces our sympathy for the plight of mistreated animals by evoking images of human suffering. As a result, the propriety of legal protection in the interest of the animals themselves becomes more apparent.

As the evolutionary distance between man and nonhuman rights-holders increases, the difficulty of analogizing to human experiences mounts. Torturing a dog evokes a strong sympathetic response; dismembering a frog produces a less acute but still unambiguous image of pain; even pulling the wings off a fly may cause a sympathetic twinge; but who would flinch at exterminating a colony of protozoa?

When legal protection is sought for plant life, the obstacles to convincing analogy are greater still. Yet even here the prospects are not altogether hopeless. Humans share certain fundamental needs with plants. Humans and plants both require water, oxygen and nutrition; both grow and reproduce; both die. A set of basic reference points for analogizing plant requirements to human needs thus exists. Some research even suggests that plants exhibit electrical and chemical reactions which are functionally analogous to pain.¹³⁵ And, once

133. See 7 U.S.C. § 2132(g) (1970). The Act's protection is expressly limited to warm-blooded animals. The animals which are covered in the absence of a specific determination by the Secretary of Agriculture are common household pets—cats, dogs, hamsters—and widely used experimental subjects such as monkeys, guinea pigs and rabbits. *Id.*

134. H.R. REP. NO. 1651, 91st Cong., 2d Sess. 2 (1970) (emphasis added). For the 1970 amendments themselves, see Act of Dec. 24, 1970, Pub. L. No. 91-579, 84 Stat. 1560.

135. See, e.g., Backster, *Evidence of a Primary Perception in Plant Life*, 10 INT'L J. PARAPSYCHOLOGY 329 (1968); Lawrence, *Plants Have Feelings, Too*, ORGANIC GARDEN-

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the bases for empathy are thus established, biologists and ecologists can obviously enrich our understanding of what "needs" exist for the other life forms with whom we have begun to feel new kinship.¹³⁶

What is crucial to recognize is that the human capacity for empathy and identification is not static; the very process of recognizing *rights* in those higher vertebrates with whom we can already empathize could well pave the way for still further extensions as we move upward along the spiral of moral evolution. It is not only the human liberation movements—involving first blacks, then women, and now children—that advance in waves of increased consciousness. The inner dynamic of every assault on domination is an ever broadening realization of reciprocity and identity. Viewed from a slightly different perspective, new possibilities for respect and new grounds for community elevate both master and slave simultaneously, reaffirming the truth that the oppressor is among the first to be liberated when he lifts the yoke, that freedom can be realized only in fidelity to obligation.

A passage in Faulkner's *Absalom, Absalom!* may hold the key: "Maybe happen is never once but like ripples maybe on water after the pebble sinks, the ripples moving on, spreading, the pool attached by a narrow umbilical water-cord to the next pool . . ." ¹³⁷ But there are some shores too remote for even these concentric circles to reach in the foreseeable future. When it is urged that legal protection be extended to nonliving entities like canyons and cathedrals, not for our sake but for theirs, it may be precisely such distant shores at which we are asked to gaze. Saint Francis of Assisi could embrace Brother Fire and Sister Water,¹³⁸ but Western societies in the last third of this century may be unable to entertain seriously the notion that a mountain or a seashore has intrinsic needs and can make independent moral claims upon our designs.

ING & FARMING, Apr. 1971, at 64; Woodlief, Royster & Huang, *Effect of Random Noise on Plant Growth*, 46 J. ACOUSTICAL SOC'Y AM. 481 (1969). See also Stone, *supra* note 14, at 479 n.93.

136. The bases of such perceived kinship need not be confined to data about individual members of a species but may embrace new understandings of how other orders of life organize themselves as groups. See, e.g., J. LATWICK-GOODALL, *THE BEHAVIOR OF FREE-LIVING CHIMPANZEES IN THE GOMBE STREAM RESERVE* 211-16, 257-93 (1968). Goodall's research shows, *inter alia*, that chimpanzee "[g]roup activity is subject to control by leaders," *id.* at 213, and that "[r]elations between individuals are affected by the dominance hierarchy . . ." *Id.* at 257.

137. W. FAULKNER, *ABSALOM, ABSALOM!* 261 (Vintage ed. 1972).

138. ST. FRANCIS OF ASSISI, *The Canticle of The Sun*, in WRITINGS 153 (P. Robinson transl. 1906). ("Praised be my Lord for sister water,/The which is greatly helpful and humble and precious and pure./Praised be my Lord for brother fire,/By which Thou lightest up the dark./And fair is he and gay and mighty and strong.")

Still we can try. We can set aside resources and create public authorities for the specific purpose of preserving intact at least some major areas of real wilderness while we convert others into more Walt Disney Worlds and Coney Islands. The very process of treating some places with such respect may itself reveal and even create conceptual possibilities beyond our present capacities.¹³⁹ If, as I have argued elsewhere,¹⁴⁰ certain choices do not merely implement but radically alter the value systems within which they are made, then choosing to accord nature a fraternal rather than an exploited role—even when the resulting institutions resolve in particular cases not to forego certain human opportunities “for nature’s sake”—might well make us different persons from the manipulators and subjugators we are in danger of becoming.

Conclusion

I have described only a possible—I think a plausible—first turn along the spiral of process through which we might grope toward an evolving environmental ethic. I certainly do not claim that I have described an answer. Indeed, the first step has already exposed its own weakness in its inability to deal adequately with the notion that nonliving nature exists for itself. But it is at this juncture that the profound significance of devotion to process should become apparent. The vision of process I have sought to sketch transcends the intermediate stances of consciousness achieved at discrete points along the spiral’s path. Its insistence on the continuing reformulation and evolution of the principles distilled from it at each stage provides a way of not only bridging the gap between successive stages but also energizing the journey through a commitment to overcome the inevitable inadequacies at each stage. Thus consciousness remains in a double stance: While vigorously living out the values provided by the present stage, we remain aware of the fact that these values themselves pass through evolutionary stages whose unfolding we participate in and sanctify. All I have said, therefore, has been written rather more in the subjunctive than in the indicative.

139. See, e.g., D. RUDHYAR, DIRECTIVES FOR NEW LIFE 21-23 (1971) (suggestion that the earth is a total “organism” in which mankind plays the role of articulating a planetary consciousness).

140. *Technology Assessment*, *supra* note 23, at 640.

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Upon that cautionary note, it is appropriate to recall this essay's governing metaphor: The plastic trees of Los Angeles are tangible symbols of a view of nature which coincides with the currently myopic premises of environmental law and policy. The trees represent nature abstracted to pure categories of human need: They provide shade, decoration and the aesthetic semblance of a natural environment.

What's wrong with plastic trees? The question can be answered only tentatively, but I have responded by expressing an ethical impulse toward nature which is irreducible to terms of sophisticated self-interest. It is an impulse I believe we violate when we use "nature surrogates" to conceal the wounds we inflict on the natural order, thereby anesthetizing our aesthetic and ecological sensibilities. Even the seemingly innocuous act of supplementing the inadequacies of nature with human artifacts—erecting plastic trees where the soil is too poor or shallow or the atmosphere too fouled to support real vegetation—may transgress the imperatives of an emerging environmental ethic. Much like black lawn boy statuary defacing too many suburban yards, plastic trees implicitly reduce the entities they portray to terms of serviceability, utility and adornment. And such caricatures in turn reinforce the belief that the depicted objects exist not for themselves but only to serve superior needs.

What is required, I have argued, is a rejection of this philosophy, itself a legacy of an anti-worldly, transcendent conception of the universe, but without a return to the immanent conception in which the natural was worshipped and human consciousness excluded from the vital place I believe it must always occupy. If this article's argument for a synthesis of the immanent with the transcendent has seemed to tilt toward immanence, it has done so largely in reaction to the almost obsessive devotion in our time to a secularized version of the transcendent, in which human will and instrumental reason have become the engine of a pilotless locomotive, hurtling through a terrain devoid of intrinsic value.

Shortly after World War II, Horkheimer asked us to imagine what a purely formal mode of reason in a valueless environment would ultimately mean:

We cannot maintain that the pleasure a man gets from a landscape . . . would last long if he were convinced *a priori* that the forms and colors he sees are just forms and colors, that all structures in which they play a role are purely subjective and have no relation whatsoever to any meaningful order or totality,

that they simply and necessarily express nothing. . . . No walk through the landscape is necessary any longer; and thus the very concept of landscape as experienced by a pedestrian becomes meaningless and arbitrary. Landscape deteriorates altogether into landscaping.¹⁴¹

What mind can resist despair at such a prospect? Who can fail to admit that the homocentric logic of self-interest leads finally not to human satisfaction but to the loss of humanity?

141. M. HORKHEIMER, *supra* note 59, at 37-38.