



An Afterword: Humane Values and Environmental Decisions

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The Academy project on the incorporation of humane values into environmental decision making extended from December 1971 to September 1974. In the course of its long life at least three dozen people participated and contributed. The reports, drafts, and supporting documents that it generated fill a large filing drawer.

This concluding essay was planned to be a final conspectus of the project. But that is not practicable. None of the participants in a large project can pronounce definitive judgment on the works of the others. Any participant can report only what he has learned from his own work and from studying the work of his colleagues. The other participants have spoken for themselves in the preceding essays and in a companion volume. Here I shall describe where I now stand in light of all this work; the upshot as viewed by any of the others would surely be different in many respects. Since this essay is largely a record of my own learning experience, I shall occasionally lapse into the first person singular.

“An economist,” according to Oscar Wilde, “is a man who knows the price of everything and the value of nothing.” To which a well-trained economist would respond, “But, Mr. Wilde, prices *are* values.” There is much justice in this riposte, and it can be documented by a long shelf of weighty volumes that purport to prove it. But despite the ponderous evidence, Mr. Wilde could win this fictitious debate if he had the patience to tackle the technicalities and ferret out the assumptions on which the economist’s “proofs” rest. Two assumptions are especially suspect. First, that the

value of anything that a consumer purchases is measured by what he is willing to pay for it. An effete snob such as Oscar Wilde could never concede that the ordinary man-in-the-street is a competent judge of the values of the things that he buys or does. In fact, you don't have to be a notorious effete snob to harbor some doubts about this assumption. The second questionable assumption is that the consequences of all transactions are reflected fully in market-determined prices. This is so far from being the case that it would not be too bad a summary to say that all environmental problems result from transactions in which market prices are either absent or are seriously distorted because of special circumstances.

Nowadays, at any rate, even economists and people of similar ilk concede that they know far more about prices than about values. The study that this essay concludes was motivated by the accompanying recognition that values rather than prices should be the decisive concern in environmental decisions. But how can values be ascertained, how articulated, and how made to shape the decision-making process? Those are the questions that have dominated the project from its inception. None has been resolved, but all have been explored and, to some degree, clarified.

EMERGENCE OF THE PROBLEM

Environmental decisions are only leading members of a large class of social decisions, namely, social decisions about the use of resources in circumstances where the consequences are deemed too important to the social welfare to be entrusted to purely private use and allocation. Such decisions are far from novel, even in the United States where there is a strong tradition of reliance on individualism and individual judgment. The construction of the transcontinental railroad in the 1860s, with the vigorous sponsorship of the federal government, probably had as profound an effect on our environment as any other social decision in our history. The construction of the Erie Canal 40 years previously had similar effects.

The environmental impacts of these and similar decisions were not inadvertent; on the contrary, the conscious intent was to "open up the West." No one, however, thought of filing or demanding an environmental impact statement. It was simply taken for granted that the wilderness was so abundant that it could be invaded without heed or restraint. Technically speaking, undisturbed wilderness was regarded as a free good; the Homestead Act of the 1870s made it legally a free good. Under this act and related policies, vast tracts were given away for the asking, until by the end of the century the

wilderness had been devoured except where there was insufficient water or insufficient level ground to make cultivation worthwhile.

This spirit of unconstrained conquest of nature continued unabated until at least the 1930s. The great flood control, irrigation, and hydroelectric projects of that epoch were constructed under the provisions of the Flood Control Act of 1936, which laid down the standard that the total benefits anticipated from any project had to exceed its costs. The words "benefits" and "costs" were not carefully defined in that Act, or for many years later, but in the early projects developed under the act they were given a businesslike, dollars-and-cents interpretation, apparently with full congressional approval. If a huge project for developing the environment appeared to be a profitable business proposition, it met the standard and could be built.

All along, of course, opposing, cautionary voices were raised, reaching a climax in the conservation movement at the turn of the century. Important local victories were won by the conservationists. Most strikingly, Yellowstone National Park was established in 1872, soon followed by Yosemite and a number of others, thus establishing the precedent for reserving for public use natural areas of unique beauty or significance. But the main emphasis was to turn the natural wealth of the continent to commercially profitable uses. Meanwhile the balance of resources was shifting. The formerly free goods were becoming scarce as population increased, per capita wealth grew, and the remaining undisturbed area shrank. The shift was largely unnoticed, but there were portents—particularly the cut-over forests of northern Michigan, the Mississippi floods, and the fearful storms in the "dust bowl" that replaced an abundant prairie. In the 1930s, while exploitation was still the major theme, attention to conservation began to grow. The frontier was long since gone, and the consequences of past depredations were becoming visible.

World War II was a dividing line. From it there emerged a wealthy and urbanized nation. What that entailed for the environment soon became evident, most dramatically in Los Angeles but also along the Ohio and other urbanized rivers. Not that there was any abrupt change in public attitudes. Previously ugliness and dirt had been accepted and even hailed as the inevitable signs of urban life, and they were tolerated unquestioningly except when they posed clearly perceived threats to life and health. But in the 1950s they were seen to be conditions that man had made and that, in a wealthy country, he could doubtless unmake. Thus Pittsburgh, which had long been accustomed to living under a blanket of soot, banned the use of bituminous coal in the built-up area, and many other cities followed.

In Los Angeles, after the smog had grown from an occasional inconvenience to a persistent insult, it was diagnosed and vigorously combatted. Along the Ohio and other rivers the improvement of water quality became more urgent than providing still more water for still more agriculture and industry. The "free" goods were no longer free. Furthermore, private initiative could not be counted on to conserve them. Public environmental policies and programs were clearly seen as necessary by the 1960s, and probes began to be taken in the Air Quality Act and the Water Pollution Control Act in the middle of the decade.

By the time public attention turned from commercial exploitation of the environment to preserving its quality, benefit-cost analysis, formally introduced for water projects in 1936, had become entrenched as the dominant conceptual framework for designing and appraising public projects of almost every conceivable sort, both in the United States and abroad. This framework, it should be remembered, was developed under the older regime, and amounted essentially to balancing the commercial value of the results of a project against the comparable value of the resources it absorbed. There was no place in it for environmental quality, esthetics, or public health and welfare—a defect that caused increasing discomfort as these aspects of projects became increasingly important and came increasingly to dominate public awareness. But benefit-cost analysis remained very nearly the only recognized method of project analysis and justification.

The stress created by this circumstance has been well described by Arthur Maass:

In other words, the objective functions of most government programs are complex; yet benefit-cost analysis has been adapted to only a single objective—economic efficiency. . . . Professor Hubert Marshall recently recited the evidences of chronic overestimation (of benefits) in a major address before the Western Resources Conference at Fort Collins. The principal cause of such benefit "over-estimation" is, I believe, the unreal restrictions placed on the analysis of projects by the unreal but virtual standard that the relationship of efficiency benefits to efficiency costs is the indicator of a project's worth, when in fact the project is conceived and planned for objectives in addition to efficiency. In such an incongruous circumstance one might expect project planners to use a broad definition of efficiency benefits. The critics, either not understanding or unsympathetic to the planners' plight, have judged them by a more rigorous definition of efficiency.¹

Thus, though the words of benefit-cost analysis remained the same,

their contents changed, for the most part insensibly and without explicit avowal. Commercial values became imputed values. The Corps of Engineers, the very citadel of benefit-cost analysis, received legal authority to include "recreation benefits" in its project evaluations, and soon recreation benefits became the decisive ingredient of many projects. But the new "intangibles" did not sit very well side-by-side with the old hard estimates of increases in crop value and value of electric power. It was a case of trying to pour new wine into an old bottle with a very narrow neck, a messy job at best.

Now, no stream has a single source. We have traced how public attitudes towards the environment changed as population and wealth grew and less readily reversible inroads upon the environment became more apparent. We have also seen how the methods of public decision making at the formal level, developed in accordance with older attitudes, were so well entrenched that they persisted, although they were seen to be increasingly inappropriate to the new demands placed on them. At the same time, other developments were taking place, which interacted with the stream we have just reviewed.

One of these developments was a body of techniques variously called operations research, systems analysis, management science, and, most recently, policy analysis. They became prominent during World War II as an adjunct to military decision making. But, of course, the application of scientific formulations to practical decisions, which is the heart of all these techniques, is very old. Machievelli and DaVinci were distinguished practitioners. Archimedes made fundamental contributions. Aristotle was a consultant to the King of Maçedon; he may have been the progenitor. Nevertheless, as a distinct, self-conscious, distinguishable skill and profession, policy analysis is barely thirty years old. Those are the thirty years that concern us here. They can be characterized as thirty years of fading innocence.

Thirty years ago it all seemed to those of us who practiced it very simple in principle, though intriguingly intricate in technique. The task of policy analysis could be stated in four words: *Maximization subject to constraint*. The Decision Maker (a fictitious character about whom more will later be said) knew what he wanted and turned to his consultant to find the best way to achieve it. The consultant, for his part, had no concern with objectives or ends; his department was techniques, or means. Give him an objective—any old objective—and he deployed a large armament of analytic methods—statistics, simulations, queuing theory, mathematical programming, game theory, optimal control theory, and much more—to discover how the objective could be attained in the highest possible

degree (though only in a discounted expected value sense in a dynamic, stochastic world).

From the very beginning, in spite of some spectacular achievements, the clients were frequently dissatisfied, and the practitioners correspondingly frustrated. All too often, the client ignored the elegant appendices, looked at the recommendations, shook his head, and said, "That won't do at all. That isn't what I had in mind at all. You have left out the crucial considerations." There was no point in remonstrating, in saying, "But I did maximize the objective function you told me about." The analyst had solved the wrong problem, and that's all there was to it.

A growing profession spawns textbooks, and by the time the first texts were out this pitfall had been recognized. The texts of, say, twenty years ago were not complete without a homily on the importance of choosing the objective function carefully, followed by an example or two of the disasters caused by inattention to this advice. The tidy separation of means from ends was still not questioned overtly—but it was beginning to be smudged. At the same time, a different set of difficulties was arising that reinforced concern about the role of objectives in policy analysis. While still accepting the mandate to maximize the value of a preassigned objective function, analysts were becoming aware that it was frequently hard for anyone to ascertain just what the objective function was or ought to be.

Perhaps the first professional group to encounter this problem on a large and unsettling scale were the federal benefit-cost analysts, whom we have already mentioned. They began their work under the aegis of the Flood Control Act of 1936. The early great dams planned in the West under this act were designed primarily for irrigation water, hydroelectric power, and flood protection. So they produced or protected commodities with fairly readily ascertainable market values, and their benefits were readily estimated, aside from some technical problems with discount rates, double-counting, and market imperfections. But when the same apparatus was turned on projects designed for more subtle purposes, the original clarity faded. "Intangibles" and "incommensurables" began to play large parts.

It was at this stage that the "cost effectiveness" mode of analysis was introduced. Cost effectiveness analyses take as their points of departure specified levels of attainment of various beneficial results—for example, specified reductions in atmospheric sulphur oxides, or specified amounts of outdoor recreational opportunities—and then inquire whether a given proposed plan is the cheapest way to attain them. If it is, that plan is said to be cost effective. This

approach is a substantial retreat from the older pretensions of policy analysis or of benefit-cost analysis. It abjures the attempt to compare the worthwhileness of the gains with the amount of the costs. It cannot be used to compare plans with different patterns of gains, for example, plans that preserve larger areas of natural ecological systems with those that provide more extensive recreational areas. In general, both its advantage and its drawback are that it evades the task of formulating an inclusive objective function in which different consequences are weighed against each other. Instead, it merely implements the aspiration that whatever is to be done—worthwhile or not—be done as cheaply as possible. It has its place when specific targets to be attained are prescribed. But it is of no help in prescribing the targets.

“Multiobjective planning” is a more recent proposal for filling this gap, but it too is a way of shifting responsibility rather than of solving the problem. Multiobjective planning starts with the recognition that any project has numerous effects and consequences and that, while each individual effect may be numerically measurable in its own units, there is likely to be no common objective unit by which the magnitudes of the different effects can be compared and evaluated. It therefore recommends planning a project so that its performance cannot be improved in any identified respect without impairment in other respects—and there it stops. Final judgment has to be made by comparing variant projects that excel each other in different directions (one may be cheapest, another may disturb the environment the least, a third may provide most protection against droughts), and somehow deciding which, if any, to adopt. The method makes a point of not articulating how this final judgment is to be made and, indeed, rests with the belief that such articulation is impossible. It is, therefore, the ultimate development in emphasizing the distinction between designating goals or values and devising means for attaining them.

Such has been the evolution of increasing sophistication in policy analysis. At first it was assumed that whenever a policy problem arose, the ends desired were perfectly obvious, and that the only difficulty was to devise the means for attaining those well-established ends. At that stage, the systems and policy analysts were exceedingly proud of the prowess with which they wielded powerful new developments in applied mathematics and computing machinery. The assumption proved to be false: goals were even more subtle and elusive than means. What was the use of powerful maximizing techniques if no one could tell what was to be maximized? There followed an increasing preoccupation with goals—at first an attempt

to define them, and later an explicit decision to leave them to someone else, the "Decision Maker."

That evolution in the technique of policy analysis has not occurred in a vacuum. At least in part, it is a reflection of some tendencies in the general culture, tendencies that may have been stimulated as a reaction against the coolly manipulative, value-free pretensions of the policy analysts. Thus, the public fears the think tanks with their big computers. The public has recognized at least as soon as the professionals that objectives cannot safely be left out of the analysis. And the public is fearful of a government and society that takes advice from model builders as soulless as the analysts professed to be.

I do not want to be taken to suggest that the current resurgence of romanticism can be attributed in any significant part to the failings of the policy analysts. What is significant is that there is such a reaction against the dominant rationalistic, skeptical, pragmatic philosophy, and that it has focused on computer-aided policy analysis as its symbol of science-gone-wild. This reaction has invaded even economics, which, perhaps, has the most firmly established tradition of separating ends from means, purposes from possibilities, demands from supplies. For some time now there has been a strong attack on the deep-seated assumption that an economy has done its job when it has satisfied the individual demands of its individual consumers. The animus has much in common with the dissatisfaction that I recounted with policy analysis. Consumers' demands are felt to be insufficiently enduring, well established, or independent of the economic process itself to serve as a firm criterion for economic performance. Consumers' demands and tastes are, to use one of the kinder phrases in vogue, simply the result of social conditioning, and besides give insufficient weight to communal goals and aspirations.

So, from a number of angles of vision, the established methods of analysing decisions have been found wanting, and always in very much the same respects. No one challenges seriously that, in a slavish way, the new analytic techniques have vastly amplified our ability to design and appraise projects in the light of given objectives. The challenge is, rather, that our skill in attaining objectives has outrun our skill in determining or even articulating them.

One might say that science has done its work but philosophy has not, and the gap has become so egregious that even the scientists have noticed. The fault, in my view at least, is not with the scientists. They started out courageously showing how they could help society attain simple—even simplistic—goals, such as maximizing the com-

mercial value produced by the use of natural resources. When it was clear that society's goals were more subtle and complicated than that, they called for a more adequate statement of the goals to be attained. But no one answered. Then they set about trying to discover the goals for themselves by the only method they know: empirical analysis. That approach has not proved fruitful, because scientific analysis presupposes a coherent, internally consistent universe to be studied, and those do not seem to be qualities that can be asserted of social goals. The scientists are still at it, trying to discover by scientific observation what people's goals really are so that the tools of policy analysis can be used uncritically to implement them. The most potent work currently seems to be that of the decision analysis school, as exemplified by Howard Raiffa, Ralph Keeney, and their followers.

But we have to question the entire concept of an immutable set of goals to be accepted uncritically by the policy analyst. We have to contemplate the possibility—often reiterated in the folk tale of the man who had three wishes—that, if we could get what we think we want, we wouldn't like it. Why? Why is it that fulfillment is a mirage, that every attainment reveals its own inadequacy, that there is always another hill to climb, that, in particular, when we have conquered the continent we realized that that was not what we wanted at all? Is it because we are insatiably greedy? On the contrary, we only think we are. "Ah cannot we as well as cocks and lyons jocund be, after such pleasures?" We cannot, because we are not cocks and lyons.

The philosophers knew all along that pleasures attained cloy rather than satisfy. How is the policy analyst to get even that degree of philosophic sophistication and folk wisdom into the objective function he uses in his analysis? He must do that or else he is condemned to the endless, tedious wheel of *samsara*—that is, to the service of perpetually unsatisfying goals. Those words are not a sermon, but a diagnosis of the current state of dissatisfaction. The policy analysts are dissatisfied because they do not want the responsibility of defining the objectives of the policies they study. The clients are dissatisfied because they do not accept the goals that the analysts ascribe to them. Public observers are dissatisfied because they do not trust the cold-blooded analysts to set their society's objectives.

AN OLD DIAGNOSIS

It is not often that one of the tritest cliches of all philosophies and religions finds scientific application, but this appears to be an

instance when it might: If man does not live by bread alone, then hard-headed policy analyses that concentrate attention on wheat yields are bound to be unsatisfying. Something is clearly left out, something we can call humane or higher values. But the objective, scientific approach does not know how to either detect humane and moral values or measure them, and is strongly inhibited against imposing them.

When all the technical trappings are stripped away, modern policy analysis is seen to be essentially an application of old-fashioned utilitarianism.² Almost from its inception, utilitarianism was reproached for being crassly materialistic, which is just the failing that its current applications have been unable to avoid despite increasing qualms. But materialism is not inherent in utilitarian philosophy, nor considering the austere orientations of its advocates, is the charge even plausible. John Stuart Mill, undoubtedly the preeminent exponent of utilitarianism, was well aware that social policy must be informed by higher moral purpose. He wrote:

We may consider, then, as one criterion of the goodness of a government, the degree in which it tends to increase the sum of good qualities in the governed, collectively and individually; since besides that their well-being is the sole object of government, their good qualities supply the moving force which works the machinery.³

This is a far cry from benefit-cost analysis or from the stated goals of any of the prevalent modes of policy analysis. Mill's dictum recognizes that public decisions should address themselves to moral consequences, which, as we were led to suspect above, is the missing ingredient in current policy analysis.

It will not do to minimize the difficulty of accepting Mill's criterion. Such a Victorian doctrine does not comport well with computing machines. It poses questions that no scientifically indoctrinated analyst cares to answer. What are "good qualities," and what "tends to increase their sum," if indeed they have a sum? Mill and his contemporary followers haven't answered those questions, but they have raised them, which is a good deal. I do not believe that those questions can be answered definitively, now or ever; but neither can they be ignored. The progress that I see in our project is that it points the way to living honestly with those forever open questions.

TRIBE'S PRESCRIPTION

Mill's dictum, then, is that an important consideration in evaluating a public undertaking, environmental or otherwise, is "the degree in which it tends to increase the sum of good qualities in the governed." At first blush this may seem excessively high-minded and impractical, but our review of the current predicament of policy analysis indicates that policy analysis has to take account of just such high-minded purposes if it is to escape from its current frustrations. If this be so, we have to find a way to bring a concern for good qualities into the decision process—in spite of the fact that no one can be trusted to decide what would be good qualities for someone else to have. As I understand it, this is just what Laurence Tribe's proposal for a synthesis through "process" amounts to. (That proposal is described in some detail in his essay in this volume.)

Let us call Tribe's proposal "groping upwards." It is an application of at least two perceptions. The first is a denial of the *de gustibus* maxim and an assertion that some values are better than other values. A taste for string quartets is better than a taste for champagnes; it is better to enjoy poetry than pornography; it is better to want to commune with unspoiled nature than to like Sunday driving on parkways. What basis can there possibly be for such evaluations of values? I believe that in all these instances, and others, the values must be rated according to the degree to which they are "consciousness expanding": the higher values in the scale are those that stretch distinctively human (as against animal) faculties and potentialities the most. It may have been Socrates who first argued for this fundamental basis of valuation, but just what the basis may be is irrelevant at the moment. The basic insight on which Tribe draws is that there are criteria, albeit difficult to express, for evaluating values themselves. Then, in accordance with Mill's criterion, one consideration in reaching environmental decisions is the degree to which the decisions reached and the process of reaching them strengthen adherence to higher values relative to lower ones.

A second basic perception in groping upwards is that at any given time, the scale of values can only be vaguely perceived. In the preceding paragraph, to make things concrete, I conjectured what the underlying scale might be. But that was only a conjecture, and even if in some sense "correct", it was inherently vague. To stick with that scale for one more sentence, we cannot measure "consciousness

expandingness," and we can learn how experiences rate on that scale only by experiencing them.

More than esthetics is involved. To revert to Mill, one of the values involved is the duty of a society to inculcate higher values rather than lower ones in its members, to nudge them upwards along the scale. But which direction is up is not clearly perceived and never will be. It is very easy to feel confident that a taste for nature is superior to contentment with crowded beaches; it is not so easy to rate a taste for nature against a concern for providing respectable employment opportunities for blacks—and that is the kind of perplexity that frequently arises.

Laurence Tribe points out that our values at any time are largely what past decisions and experiences have made them, and that one of the consequences of our current choices is to mold our future values. We must recognize that our current scale of values is only tentative, but it is the only scale we have. We must use it as best we can to make choices that will strengthen our adherence to higher values and to make our value system more like what it "ought" to be. I take it that our values "ought" to be those that stand the test of time, and that do not lead to choices that we shall soon regret, as we now regret the annihilation of the buffalo and the destruction of the forests of the Michigan peninsula. But in any event I agree with Tribe that the processes by which we make our choices that shape our values ought *themselves* to be ones that reflect the best sense we can achieve, at any particular time, of the sorts of values we are coming to hold.

It seems to me that the major practical import of groping upwards is that we should appraise each option, including each option for appraising options and for structuring choices among them, in terms of the extent to which it promotes or interferes with each of the "higher values" that it seems likely to affect. Respect for nature, for example, now seems such a value, and any option that expresses and exemplifies respect for nature is to that extent preferable to one that does not.

The Tocks Island controversy illustrates both the potentialities of this approach and the perplexities it raises. Consider the potentialities first. One of the benefits for which the Tocks Island Dam was designed was to assure a low flow of 3,000 cubic feet per second at Trenton. This flow is desirable for a number of reasons, high among them that it would keep the saline waters of the Delaware Estuary safely below the Torresdale intake of the Philadelphia water supply system. The facts are somewhat in dispute, but let us accept them in order to examine the principle at work. Let us suppose also that the

recreational potential of the upper Delaware is at least as well served without the dam as with it, nature loving being a higher value than picknicking and water skiing (even according to most picknickers and water skiers). But, since the recreation benefits preponderate in the benefit-cost evaluation of the dam, if we reduce them to zero or less in this way, the benefit-cost ratio will become unfavorable and the dam will not qualify for construction. Would this be a disaster for Philadelphia? In fact not. There are other ways to protect its water intake, some not environmentally destructive at all.

Now, the Philadelphia water supply and the costs of other ways of protecting it in drought years are very practical considerations, but they cannot claim to serve higher values. On the basis of Tribe's analysis they should play a subordinate role in making the decision, and should by no means be determinative. We should learn to sacrifice practical considerations in favor of higher values, and each time we do so we shall strengthen our ability to do so in the future. Then future generations will not look back on us with contempt for having desecrated the Tocks Island reach of the river to save a few tens of millions of dollars in assuring Philadelphia's water supply.

In short, to inject humane values into environmental decisions we must undertake a serious commitment to them, and give them pride of place over practical considerations. In fact, however, the priorities are just the reverse in current practice. The 3,000 cfs at Trenton has come to be regarded as what Robert Socolow calls a "golden number"—an absolute requirement that has to be met by any plan of development, without regard to its merits in other respects. In that particular application, groping upwards speaks unequivocally. It is wrong to design the development of the Tocks Island region subject to the requirement that 3,000 cfs be provided at Trenton at all times; it is right to infringe this practical requirement if significant "higher values" can be attained by so doing.

But there are other aspects of the decision that are not so cleanly disposed of by taking higher values into account. The main controversy, indeed, concerns the amount and nature of the recreational opportunities to be provided. The situation can be sketched as follows: the Tocks Island Dam would create a large lake—37 miles long—in what is now an only slightly spoiled rural countryside stretching along the Delaware River from the Delaware Water Gap to Port Jervis. Exurbanization is already encroaching, but has not yet destroyed the basically nineteenth century farm country character of the area. The Tocks Island Reservoir and Delaware Water Gap National Recreation Area would change all that. There would be a majestic dam rising to 160 feet above the current stream

bed, beaches to accommodate 59,000 people, parking lots and access freeways for 33,000 cars. The plan has varied from time to time, but in one version the park was planned for a capacity of 150,000 in its 47,000 acres. One doesn't need much imagination to hear the cacophony of the transistor radios.

Now, do respect for humane values and concern for good qualities in the governed point in the direction of building a dam, or do they indicate, rather, that we should endeavor to preserve this fragment of our heritage? This could be done, as has been proposed, by establishing the park (to arrest exurbanization) without constructing the reservoir or the mass-recreation facilities. A large body of opinion, indeed, sees the path of virtue leading in that direction.

But now let us contemplate the map. The proposed reservoir and park lie in a unique position within easy driving distance of the first and fourth largest standard metropolitan statistical areas in the country. The poor and near poor of New York, Newark, and Philadelphia have little use for open countryside and second-growth wilderness. They canoe not, neither do they hunt. But many of them would appreciate a family outing on a sweltering Sunday to a well-equipped picnic grove or a fresh-water beach. The proposed park provides an ideal, large-scale locale for such facilities. Would the "sum" of good qualities in the governed thereby be increased, along with their Sunday enjoyment? There would be nature walks, rental canoes, even a 900-acre wildlife preserve. Very likely some of the visitors would have their interest in canoeing and hunting ignited by this close exposure. And of course, the family picnic is itself an American tradition with some claim to preservation.^a

In this application it is by no means clear which decision maximizes the sum of good qualities in the governed, or better affirms our dedication to humane values, even when disagreements about which values are more "humane" are temporarily assumed away. Untrammelled wilderness and unspoiled cultural artifacts are higher values, but so also is inexpensive outdoor recreation for city dwellers. The appeal to humane values, in this instance and in many others, is obviously not decisive.

Yet, even here, Tribe's appeal is not futile. It reminds us that a conventional benefit-cost or cost effectiveness analysis wrongly neglects such considerations completely. The conventional method of quantification attempts to measure recreation benefits by means

^aI must mention that any implied support of the Tocks Island project is intended merely to force an issue of principle. In fact there are such technical difficulties in the design of the project that it seems unlikely to work out as idyllically as described in the text.

of the number of visitor-days appraised at rather flaccid values—in the Tocks Island case ranging from \$.65 a day for sightseeing to \$2.50 per day for hunting—based on market or cost considerations and purposely avoiding any attempt to evaluate the quality of the experience or its contribution to increasing the sum of good qualities in the visitor. Nowhere does conventional analysis admit any purpose higher than ephemeral enjoyment. Since there are such purposes, and since everyone knows that there are, groping upwards demands only common honesty when it insists that higher values be taken into account.

If we knew which values should be deemed higher and which lower, a commitment to respect for higher values would go a long way toward settling the problems of environmental decision making; but in many instances we do not know, or cannot agree on, what the hierarchy of values is. As things stand, we have to contend with many perplexities that no one can resolve definitively: we shall know whether we have decided wisely only after we and our children have lived with the results, if then. But at least we shall not decide shamefully if every decision is designed to promote humane values as they are understood, however dimly, at the time it is taken. Tribe urges us to wrestle openly with the humane values involved whenever an environmental decision is to be taken.

SOME ASPECTS OF IMPLEMENTATION

We have now argued a hard doctrine. In making decision about environmental matters, cognizance, and even priority, has to be given to “humane values,” “higher values,” and so on. In so arguing, we do not imply that this is not already done. In fact, it is sometimes done; humane values are too insistent to be denied (remember the quotation from Arthur Maass, p. 156). This is just where the stress and dissatisfaction comes from. Nevertheless, we frequently do not admit that we are motivated by higher values.^b They are considered to be inappropriate in hard-headed analysis, and indeed, the analyst is constantly enjoined to keep his personal preferences (i.e., higher values) out of his analysis. Our argument entails that higher values do have a proper and necessary place in any analysis. We now consider how this place can be provided without sneaking them in surreptitiously.

For higher values to be injected into a policy analysis there must be widespread agreement about them—or at least about the qualities

^bThis is one of Robert Socolow’s “failures of discourse” (see his essay in this volume).

to be sought in the processes for arriving at such substantive value agreement. Fortunately, in any society there is often such agreement, though this circumstance is frequently denied. The denial arises from confusing what is "objectively provable" with what is generally agreed. The fact that there is no way to "prove" that denuding forests is bad is perfectly consistent with universal agreement that it is bad. Broad agreement on what is good and what is bad, however, is not sufficient to establish a coherent scale of values. The separate values often conflict, as we have seen in the Tocks Island case, and there is often no clear ranking of the priorities among them.

One method for establishing priorities among conflicting values has been proposed by John Hammond.⁴ Although I feel that we have to amend Hammond's proposal substantially, it is worth considering here. Hammond's notion is to construct a rating scale in which the relative importances of the different values at stake are rated on a scale of 1 to 10, or perhaps merely ranked. Then one is to score each of the alternatives with respect to each of the values with a system of marks such as "+", "0", and "-". Finally, one ranks the alternatives, giving the highest ranks to the alternatives for which the highest scores tend to be associated with the highest-ranking values.

There is a fundamental difficulty with applying this sort of proposal to social decisions, environmental or otherwise. The relative importance of the values at stake in any particular decision is not an absolute, once-for-all matter. Among other things, it depends a good deal on how well those values are being served by prior or contemporary decisions. To construct such a rating scale we have to answer a question like, "Which is more important, preservation of salt marshes or provision of respectable jobs for blacks?" And such a question is inherently unanswerable. The only respectable response to it is another question: "How many acres of salt marsh and how many blacks without respectable jobs do we now have?"

We have seen in the case of Tocks Island that it was both irrelevant and impossible to assign relative priorities to the value of recreation for a comparatively small number in a comparatively natural setting as against recreation for a large number using highly developed facilities. We could formulate the Tocks Island question sensibly only by recognizing that the facilities there would be net additions to the supplies of recreation opportunities of both types available to the same population of users. We don't really have to be able to decide which type of use is of higher value "absolutely," but only which type is more urgently needed in view of the alternatives to Tocks. Judgments may still differ, and will, but the problem is vastly more manageable.

With this amendment, the ranking suggestion appears helpful. The bread-and-butter consequences of alternatives can be compared by a standard benefit-cost analysis. The higher value consequences can be compared, nonquantitatively, by a table in which the different higher values affected are listed in order of their urgency in the applicable context, and each alternative is given a nonquantitative score for each of the higher values as well as a quantitative score for the benefits and costs that can be assigned reasonably firm monetary values. Persons of good will scrutinizing such a table can still disagree, but they will be taking all values into account and improving their capacity to do so in future instances. That is about as far as groping upwards can take us on any single decision. For the rest, the process depends on facing choices among values candidly and accumulating experience.

So much for the staff work performed by the policy analyst. Staff work is not likely to be effective, however, unless it takes account of the rest of the decision process in which it is immersed, and in particular of the decision maker whom it is intended to serve. Who is the "Decision Maker"? Several of the participants addressed themselves to this question, and were unanimous in finding that he is plural. In the Tocks Island case, the decision makers appear to be the governors of the affected states plus the United States Congress. In general, even when the organization chart shows a single locus of decision, the facts of the case indicate that the nominal decision maker is not unfettered but must seek a reconciliation among the decisions advocated by other more-or-less influential and more-or-less numerous individuals. The so-called Decision Maker is in fact a process of reconciling the desires, claims, and powers of a variety of contending groups.

The circumstance that makes this process manageable is that all the contenders at any time avow allegiance to roughly the same basic set of higher values. The saying is that "disagreements concern means rather than ends." The assertion is often debatable, but belief in it makes conflict manageable. Public policy decisions are therefore argued out by people who, for various reasons, give primacy to different considerations. It is becoming fashionable to perceive the virtues of this circumstance—in effect, to advocate advocacy. My own feeling is that extolling advocacy in public affairs is a bit like lauding the virtues of gravity or friction.^c

^cNow that the issue has come up, candor compels me to disclose that I personally am rather in favor of the law of gravitation (in spite of its occasional tragic consequences), but am bitterly opposed to the second law of thermodynamics. And I believe that anyone's attitude toward advocacy in public affairs is about equally consequential.

Still, at least one comment is in order. The instances always cited for the efficacy of advocacy are legal disputes and scientific controversy. It is not pointed out nearly so habitually that those are also the two areas in which, over the course of time, very strict canons have developed for the admissibility of evidence and the validity of reasoning. Severe discipline severely enforced is what distinguishes the two exemplary types of adversary proceedings. Just contrast the logical rigor that you would expect to find in a paper called "On the Effects of Ions of NaF on Dental Enamel" with what you would encounter at a public forum on fluoridating the town's water supply. How differently even the same man would speak in those two contexts!

The familiar examples, then, confirm the efficacy of highly disciplined advocacy, but have little to say about the much less constrained version that is employed in public decision making. I know of no more vivid exposition of the shortcomings of the political version of advocacy than Robert Socolow's "Failures of Discourse" in this volume. He has caught and summarized nearly all the pathologies of public undisciplined argumentation too well for me to recapitulate.

The significant issue, then, about advocacy is how to constrain it. The pertinence of the classic examples of fruitful controversy is the lesson that advocacy can be constrained even when passion-engendering issues are at stake, as they are in both law and science. They also show that the social arrangements for controlling advocacy are likely to be very different in different circumstances.

The participants in our project were well aware of the tendency of uncontrolled advocacy to misfire, and were accordingly unwilling to expose decisions about environmental policies to its perils. There were therefore several proposals for the establishment of a relatively neutral institute or institution, endowed with great prestige and scientific expertise, to sort out the claims and arguments of the advocates and produce an authoritative appraisal and recommendation. The pronouncement of this neutral scientific review institute would not be entirely binding on the Decision Maker but would incorporate the best overall evaluation that skilled and disinterested scientific judgment could produce. It was also recognized that such a "neutral" evaluative group, no matter how prestigious, would inevitably enter the decision making process as an advocate for its own conclusions.

I have to cast doubt on the feasibility of creating an institute of respected nonpartisan partisans. It has already been tried, to a degree, and the results are just what might be expected. The National

Academy of Sciences is being appealed to more and more frequently to perform this function in public debates that have scientific aspects, including, in fact, debates about environmental policy. The conclusions of the National Academy have not been accepted, on the whole, as demonstrably neutral and authoritative. The prejudices and preconceptions of the scientists do show, confirming Private Willis's deep thought that

Every boy and every gal
That's born into this world alive
Is either a little liberal
Or else a little conservative,
Tra-la-la

Scientists, like everyone else, are subject to the influence of their personal status and preferences.

Both law and science, in their different ways, recognize that there are no neutrals and limit their disciplining of argumentation to imposing constraints on the behavior of the adversaries. Something analogous is required in public discussions of public problems, but it will evolve, if it does, gradually, and I am not in a position to suggest it. Here, too, we must grope upwards, on a procedural level.

I do, however, have one positive suggestion to make: that in the environmental field we arrange matters so that no one party receives the great preponderance of the ammunition.^d At present there are no such arrangements and, as an example, in the case of Tocks Island only the Corps of Engineers had the wherewithal to conduct a genuine study and analysis of the situation. Here, and typically, the dice were loaded in favor of the big battalions. This is a situation that can be corrected more easily than is often supposed. One method would be as follows. At the stage where a feasibility study is seen to be in order, the funds appropriated for that purpose could be turned over to a Court of Environmental Affairs rather than to one of the interested parties. The court could then invite interested organizations, agencies, and people to submit evidence of legitimate concern, somewhat analogous to the current procedures for being granted standing to intervene in a legal proceeding. After the admissions have been granted, the court would divide among the admitted parties both the budget and the tasks. The results of the analyses would be

^dThis is really a special case of Laurence Tribe's insistence that the processes from which we start in environmental matters should assiduously avoid preassigned domination in any form.

argued out, as at present, before the public and the cognizant public officials and bodies.

The sole change from present practice at that stage would be that no evidence which is only unilaterally available would be admissible at any official proceeding. "New facts and findings" could be introduced only with the permission of the court, which would assure that before they were introduced all parties of standing had fair opportunity to inspect and audit them. Such a change in procedure would not entail duplication of effort. Presumably the Corps of Engineers would still be assigned the tasks of performing the test borings and making the hydrologic studies for a project such as Tocks. But the other interested parties would have the opportunity and facilities to audit the Corps' work thoroughly and to make their own analyses of the data developed by the Corps.

This proposal appeals to me as a first step toward lifting the level of semipublic debate in the environmental field in a way that is cognizant of Laurence Tribe's reminder that devotion to process is the beginning of environmental wisdom—the only way to avoid some of the failures of discourse that Robert Socolow has catalogued. Some of Socolow's "failures," of course, arise from the central problem of this project: the admission that higher values are legitimate considerations in environmental decisions. Those failures will be cured when we accept the commitment to public purpose, to maximizing the sum of good qualities, to the advancement of higher values.

This essay is further evidence of my assertion that there are no neutrals. I was assigned the task of reporting on the work of others. But I see that I have not done that. I have come to my own conclusions and have advocated them. Let me close then by conceding that I am groping too, and that my conclusions are no more authoritative than those of the authors on whom I have passed judgment.

It would have been more comfortable if we could have emerged from this long effort with a formula for measuring a project's contribution to humane values and a handbook for applying the formula. Instead we have arrived at the conclusion that no such formula or handbook is possible, now or ever. Environmental decisions were seen to be part of the human experience in which wisdom is acquired by earnest seeking rather than by the application of pat formulas, and in which each decision's contribution to wisdom (or detracting therefrom) may be as significant as its overt results. In

the environmental field, the road to wisdom is a decision process that forces explicit recognition that the environment has values that transcend the economic calculus.

NOTES

1. Arthur Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions," *Quarterly Journal of Economics* LXXX (May 1966): 208-209, 211-212.

2. The point is developed by Laurence Tribe in "Policy Science: Analysis or Ideology?" *Philosophy and Public Affairs* 2 (Fall 1972):68-72, 85-89, 105-106.

3. J. S. Mill, "Representative Government," in *On Liberty, Representative Government, The Subjection of Women, Three Essays by John Stuart Mill*, ed. Millicent G. Fawcett (London: Oxford University, 1969), Chap. II, p. 168.

4. Hammond, John S. III, "Bringing Order in the Selection of a College," *Personnel and Guidance Journal* 43 (March 1965):654-660.

