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## THE NECESSITY TO CHANGE MAN'S TRADITIONAL VIEW OF NATURE

Earl Finbar Murphy\*

### I

Reality exists for the individual thinker, not in terms of the objective world that stands round him at any particular time, but by the preconceptions he holds. How the objects about him are seen—indeed, whether or not they are seen at all—depends for nearly all men upon the preconceptions which are held concerning them. Beyond the task of perception, of course, there lies the far more abstract realm of inference, and between the human preconceptions in the process of perception and that of inference, theory and opinion tend to squeeze out the harder facts. As a result, man may not even know he is being distressed or wounded, much less why. And, needless to say, the job of avoiding or curing harms of which he is not even aware cannot materialize. The feeling processes are all anesthetized by the operation of ideas, when such a state of unknowing exists.<sup>1</sup>

This is not to agree with Bishop Berkeley that nothing exists except in the mind. For purposes of social research, there seems very definitely to be a physical universe existing autonomously of any human cogitation. It appears as an independent realm which goes on making its changes, whatever ideas are entertained about them. No matter how opinionated a man may be, if there is no conformity between his views and the objects of that view, he lacks total control of the situation and is likely to be victim rather than victor.<sup>2</sup>

It would be comforting to be able to say that what a man does not understand neither concerns nor can be touched by him. This is not true, however, of even the idiosyncratic opinion of the individual psychoneurotic. As to the commonly held prejudices of mankind, what is not known can definitely be fatal, either to what man misunderstands or to humanity itself. To see the world in terms of a preconception that does not conform in essentials to the physical phenomena of the world is to set the stage for confrontations that can work only drastic changes in the actors and the stuff which is

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<sup>1</sup> G. WEIGEL AND A. MADDEN, *KNOWLEDGE* ch. 2 (1961).

<sup>2</sup> D. BOORSTIN, *THE IMAGE* 256 (1962).

acted upon. Nothing short of profound transformation is possible; and nothing less in the way of change has occurred in historic time.<sup>3</sup>

Nor is the depth of ignorance any other than an accelerator for this process. The wretchedness of some Kallikak eking out his misery on a hillside farm, with a goat or two for sustenance, may have excited in the past an occasional pity for his condition. But it aroused nothing more because the object of the pity seemed too insignificant for grander passions. Unfortunately, the concept of this insignificance is exclusively the prejudice of the observer. Even if he were to be unique, such a miserable specimen would be a menace; and, since he has been a universal presence rather than an isolated event, the danger he poses is greater in scope than the depredations of Attila, Tamerlane, or Hitler.<sup>4</sup>

From the view of social control, it may be better to have such persons spread over the rural landscape than pent within urban public housing towers. Surely, so far as erosion, siltation, and general resource destruction are concerned, however, the quicker such people become city-bound the better for nature. The cosmopolitan, who thinks these churls would be better off re-settled once again on the land, lacks an understanding of the land's needs, whatever sensitivities he may have to people's.<sup>5</sup>

Indeed, the concentration of more and more people on less and less land might be the best course for resource salvation. If that were true, it would be the tendency to urbanize the rural, the desire for a suburban villa, the drive to make megalopolis a country-wide entity, that would be the basis of continuing disaster.<sup>6</sup> Whether this proves a productive idea, one fact ought to have emerged: the *hillbilly* is in no wise an insignificant person. Only a preformed, and uninformed, opinion amounting to prejudice could persist in thinking differently.

Preformations of thought, however, are an inevitable part of man's thinking. Truthfully, it is by them—in the forms of language and idea—that the mind expresses its operation. Hope for change does not lie in some subliminal transference in thinking that would

<sup>3</sup> M. COHEN, REASON AND LAW 87-94 (1950).

<sup>4</sup> C. MCWILLIAMS, ILL FARES THE LAND 199-201 (1942). "Like magnets. ... [eroded lands] attract ex-oil worker, ex-miners, and dispossessed farm owners and tenants who cannot get a foothold, through lack of capital, in the better farming areas. Population reservoirs are created in the areas of greatest erosion". *Id.* at 199.

<sup>5</sup> P. GOODMAN, GROWING UP ABSURD 233 (1960): "[R]ight proportion involves considerable decentralizing and increasing the rural-urban ratio."

<sup>6</sup> R. LORD, THE CARE OF THE EARTH 274 (1962) [hereinafter cited as LORD].

allow a direct perception of the world, but rather a self-consciousness in how new conceptions develop out of the interaction of the predecessor concepts.<sup>7</sup> In this sense, there can never be an original idea in the affairs of men; and it is why every modern scientific belief seems to have been adumbrated by a pre-Socratic Greek.

Yet, looked at a bit differently, every century produces concepts not previously formulated, however possible it is to trace origins. Biblical scholars seem to have proven Jesus of Nazareth never had an idea that a Pharisee, Essene, Zoroastrian, or other western Asian religionists had not already propagandized in that region. Yet, somehow or other, the amalgam was different and events transpired that no Pharisee, Essene or Zoroastrian ever foresaw.<sup>8</sup>

It is the nature of concepts to have origins that in no way predict the idea's future; and it is in the banging together of these unpredictables that humanity does its living. It is in these spaces the non-genius and the non-leader make their contributions; and it is in the massiveness of the sum of these individual contributions that the significance lies of even one naked savage burning forests off a hillside. "One idiot in the dry forest with a match can be the equal of God" is supposedly an Indian proverb. If it is not somebody's proverb, it should be.<sup>9</sup>

Consistently, man insists nature conform to his prior expectations of it; and he is more often annoyed at nature's perversity when it does not, than moved to reflection on the basis of new evidence. Lush cover should be a sign of rich soil; and hence a good site for an agricultural colony. Certainly this is true of deciduous forest zones in temperate climates; and this is why the Druid's oak and the blackly mysterious walnut grove have nearly everywhere been replaced by sunny fields of waving crops. Therefore, it has seemed only practical to export this experience to the tropical jungle in order, in an overpopulated world, to claim them for crops; and in that "practicality" has lain tragedy.

For the most part, jungle soils are thin and poor, their cover an ecologically suitable protection worked up for just that locale. To remove that cover is not to prepare the way for farms, but for desert. Naked to the elements, these soils are gullied by rain and consumed by the sun "like magnesium burning"; and from the result of this,

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<sup>7</sup> H. BARNES, *AN EXISTENTIALIST ETHICS* 12 (1967).

<sup>8</sup> W. BRADEN, *THE PRIVATE SEA* 75-76 (1967) illustrating the thought in terms of neo-Platonist idea-theory.

<sup>9</sup> As Rebecca West puts it, speaking of Dalmation deforestation: "The human animal is not competent." 1 R. WEST, *BLACK LAMB AND GREY FALCON* 115-16 (1941).

there can only come a bare aridity not rectifiable in humanly-oriented terms.<sup>10</sup>

Done a few times this would have been sad but the tragedy comes from man's persistence in this course. Today people still talk about the *underpopulation* of South America and Africa. Relative to other areas, that may be true. Yet, it is an underpopulation like that of Appalachia, so far as the natural resources of those continents are concerned: namely, underpopulation in terms of possible prosperity does not exist in South America and Africa.<sup>11</sup>

Still, people continue to talk about the ability of those continents' interiors to absorb enormous populations. Politicians propose moving residents into the empty interior from the crowded coasts. The fact that many interior regions already opened have exhausted their potential for agriculture, so that the farmers are coming down to the coast in order to survive, does not seem to mute the oratory. It is all of a piece with putting a jewel of a city like Brasilia onto a plain that lacks enough water to maintain it economically. It is not to say permanent agricultural settlement is impossible in the interiors of Africa and South America; but it does mean the selection must be based on ecology and not upon glancing at a large-scale map of the world.<sup>12</sup>

## II

Man as a species has been a mobile animal. Although a predator who is omnivorous in his appetite, except as his own customs inhibit his selection, he yet needs a fairly extensive range for his maintenance. Though man's height varies widely, depending upon diet and reasonably settled habits, his weight has been stable over the milennia, as have his dietary habits.

From the time of Dr. Leakey's hominid in Olduvai Gorge, dated 1,750,000 B.C., the average human adult male has weighed from 120 to 150 pounds (with average adult females about 25 pounds lighter); and the maintenance of this weight has required about 2,000 calories per day. Only in the late nineteenth century did a combination of

<sup>10</sup> W. VOGT, *THE ROAD TO SURVIVAL* 234, 242 (1948) [hereinafter cited as VOGT].

<sup>11</sup> W. HOTCHKISS, *MINERALS OF MIGHT* 178 (1945), who in terms of water-power in Africa and Latin America foresaw the "prospect of a using population relatively limited in numbers."

<sup>12</sup> For an extreme pro-population growth view, basing it on the "low" population per square kilometer in Latin America, see the excerpt from *Primera Plana*, *Atlas*, Oct. 1968 at 31-32. Like Appalachia, their best hope is low population and a planned resource recycling. R. KERR, *LAND, WOOD AND WATER* 47-48 (1963).

rich diet and sedentary life patterns allow large numbers in western Europe and North America to reach a commonly higher weight, reserved in previous ages for noble classes and priestly castes. Yet whatever the weight he seeks to maintain, man has always made heavy demands upon nature to sustain it.<sup>13</sup>

Ulysses claimed the Lotus-eaters, on their islands along the coast of Libya, lived by plucking fruit from trees growing on their beaches. It was an idyllic existence, requiring no effort for survival. Flaccid and lax, the Lotus-eaters kept up an undemanding drugged existence that seemingly could make no effect upon nature. But, confessedly, their state has been so rare a one that they are regarded as legendary. Certainly today their successors on those islands lead a precarious life, with no lotus-trees, or much other cover, anywhere in evidence. If there ever were Lotus-eaters, they long since have been replaced by more ambitious folk who over the years have swept the islands clean of anything capable of keeping up life for even the most strenuous worker. If it were not for the poor fishing grounds nearby, they would be uninhabited completely, instead of being nearly so.<sup>14</sup>

Still, the ways of the Lotus-eaters have been rare, found only in isolated, scarce spots. Even the Polynesian cultures, which to eighteenth century Europeans seemed comparable, were filled with exertion, much of it determined by a search for food supplies.<sup>15</sup> It is, of course, not possible to say how much range in mileage a man will need to feed himself. Even if his weight, height, age, health, stamina, and minimal caloric needs are all known, the range he requires will still vary depending upon whether he is a hunter, a pastoralist, a slash-and-burn agriculturalist, a fisherman, or a settled farmer, and also, upon the character of the locale in which he pursues his occupation.<sup>16</sup>

The Australian aborigine needed thousands of miles of desert to catch the same amount of game that an African hunter could retrieve from a few miles of rich savannah. The slash-and-burn jungle agriculturalist, who may get only four years of harvest from

<sup>13</sup> THE ECONOMIST, Sept. 28, 1968, at 60-61 argues calories needed are set by the individual's average weight and that nutritionists overestimate the caloric need, so that 2,000 calories per day may err on the side of the generous.

<sup>14</sup> One theory has these passive legendary folk replaced by the aggressive Sea People about the time of the Odyssey. G. BIBBY, FOUR THOUSAND YEARS AGO 338 (1962). On the location of the Lotus-eaters themselves, see Taccone, "Lotofagi", ENCICLOPEDIA ITALIANI 519 (1934).

<sup>15</sup> R. LINTON, THE TREE OF CULTURE 179, 183-84 (1955).

<sup>16</sup> E. HYAMS, SOIL AND CIVILIZATION 9-10 (1952) [hereinafter cited as HYAMS].

soil thereafter requiring fifty years of allowing for recovery, demands a range of hundreds of miles for his family whose numbers could be fed indefinitely on a few acres by a Japanese peasant.<sup>17</sup> It is just not possible to universalize the demands a man must make upon his environment beyond saying this: except for Lotus-eaters, all human demands are exorbitant relative to the natural supply, limited in the past only by the technology available to execute them. After all, it has taken the world to be the pantry of the Roman emperor and the American housewife.

One of the common mistakes is to assume a man cuts his demands upon nature when he gives up hunting, pastoralism and slash-and-burn agriculture to become a settled farmer content to derive his entire subsistence for shelter, food, tools and clothing from a few acres. Such a view is simply mistaken since, if anything, the demands grow far greater than under previous life-patterns.<sup>18</sup>

First of all, settled farming requires the stripping away of all previously existing cover, the breaking up of the soil, and the introduction of plant species probably strange to that area. This then produces a drastic change in the wildlife, with most old forms disappearing and a few types surging up that can forage in the new crops. The next stage is a change in fish life as salt from run-off water comes into the streams.<sup>19</sup>

What happens after this stage in agricultural development depends upon the area and how it is exploited. If it is northwestern Europe with a climate favorable to agriculture, a different (but equally long-term) balance is struck. If it is not favorable to agriculture, like the Mediterranean basin (except as carefully husbanded, which in thousands of years has proven rare), a steady slide to irreversible desert conditions is begun.<sup>20</sup> What is true in either case, however, is that the demands made upon the region ultimately are far greater than under simpler forms of human economy. The population growth and the appearance of market exchange, both of which generally occur anytime settled farming consistently produces a surplus over the farmers' needs, merely accentuates a demand already strongly present.<sup>21</sup>

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<sup>17</sup> VOGT, *supra* note 10, at 93-94.

<sup>18</sup> This is made evident by the theory of "surplus" in V. CHILDE, *THE PREHISTORY OF EUROPEAN SOCIETY* 38-39, 79 (1958).

<sup>19</sup> The change will be profound, though in the case of the newly-acclimated species it need not be harmful in either an ecologic or economic sense. D. ALLEN, *OUR WILDLIFE LEGACY* 62-77 (1954).

<sup>20</sup> HYAMS, *supra* note 16, at 119-27 and ch. 14.

<sup>21</sup> K. WITTFOGEL, *ORIENTAL DESPOTISM* 11 (1957) and throughout this erratic and brilliant book.

## III

Exchange is, however, an accentuation that impels almost a change in kind in the human demands upon the environment. Before the arrival of large populations and the institution of exchange so that the specialization of labor was possible, man was mobile but it was a mobility induced by the need of small units to find food or, in the case of pastoralists, of the horde to secure pasturage free of threat from natural changes due to over-grazing or from competing, more effectively aggressive peoples. Once market exchange appeared, individuals in great numbers began to spread like spilled mercury. Interconnections became possible that served as the means of fleshing out a body of trade out of which could come a new form of life: the urban and the commercial or industrial civilization.<sup>22</sup>

This has happened several times and several places, generally perishing only to rise elsewhere. The first such civilization was probably that of the Sumerians in 4,000 B.C., which gradually spread its trading influence from North Africa to northern India. The last such were those of the Arabs, Indians and Chinese which had found forms capable of stagnant survival, albeit with considerable overall retrenchment when viewed from the vantage of time.<sup>23</sup>

These three cultures possessed, in fact, a transient, localistic appearance until the nineteenth century, when it became first apparent that a globally flourishing urban-industrial civilization had become existent in the preceding three centuries. Starting in western Europe, utilizing freely upon mechanical ideas that had meant little to their Hellenistic, Arab or Chinese inventors, it was a kind of society that spread over the whole world and replaced or fatally disturbed the societies it found there. Even should this world-wide, urban-industrial society, with its claims to omnipotence and permanence, disappear, what is left behind shall have been altered upon a fantastic scale not to be matched in the past<sup>24</sup> . . . or perhaps not *quite* to be matched in the past, if it should fail, would phrase it better.

Modern man has an indifference to past failures because he is convinced failure in the past was due to bad luck or bad planning, just as he is convinced his own civilization can collapse only if there should be an atomic war or else guerrilla wars of a Gracchic sort stemming from racial prejudice, class selfishness, or some death-

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<sup>22</sup> M. WEBER, *GENERAL ECONOMIC HISTORY* 239, *et. seq.* (Knight transl. 1961).

<sup>23</sup> The ideas here are derived from CHILDE, *WHAT HAPPENED IN HISTORY* (rev. ed. 1954).

<sup>24</sup> R. DUBOS, *MAN ADAPTING* ch. 8 (1965).



urge to aggression in man. Everything else he sees as settled by technology and the economics of either Karl Marx or Lord Keynes. Past tragedies were due either to the lack of such valuable knowledge, or to the kind of armed violence threatening modern society from within, or to the distinct misfortune of being over-run by some savage horde on the move.<sup>25</sup>

Yet, aside from the currently highly menacing threat of the universe being atomized in order to justify abstract principle, none of this seems true. Rome suffered many defeats from invading barbarians and, so long as the imperial economy flourished, absorbed them with little strain. China in the seventh, and again in the thirteenth century A.D., endured population reductions from three-quarters to one-half; and made smooth recoveries both times.<sup>26</sup> Just as long as the resource base has remained, absorption of, or recovery from problems has regularly occurred in every empire. When that resource base has failed though, whatever the skills of the society erected thereon, collapse has occurred from Yucatan to Indo-China. If history could be understood in terms of one single cause, this would be it. All else would be attendant upon it.

However, so many single explanations have been given for the great falls in history, that one hesitates even before so complex a single explanation as this. Why Rome declined seems to have brought forward about as many persuasive causes as there have been investigators, extending from the spread of Christianity to the failure of the empire to develop a civil service based on merit. But if each of these has some importance, then one cannot ignore the gradual slipping of traditional sources of grain for the western Empire in southern Italy, Sicily, and North Africa.<sup>27</sup> Nor can an observer do other than shake his head over the decline of the Greeks' and the Phoenecians' Wild West, with their fabled riches, to the decadent regions today of the Mezzogiorno and the Mahgreb. It is as if all the jokes about the rich Texans were abruptly to be

<sup>25</sup> Even a purportedly all encompassing "budgeting our resources, 1966-75, to achieve 'freedom from want'" gives practically no consideration to natural resource problems. A "FREEDOM BUDGET" FOR ALL AMERICANS 53-54 (Randolph Institute, 1966) [T]hose drafting this 'Freedom Budget' have sought to outline, objectively and fully, the steps required for the abolition of poverty in America." A. PHILIP RANDOLPH, A "FREEDOM BUDGET" FOR ALL AMERICANS VI (Randolph Institute, 1966).

<sup>26</sup> D. BLOODWORTH, *THE CHINA LOOKING GLASS* (1966). However, Norman Shaw claims China's population was static in total amount from the 6th to 13th centuries, A.D., S. COULING, *Population*, *ENCYCLOPEDIA SINICA* 446-48 (1917).

<sup>27</sup> S. DILL, *ROMAN SOCIETY IN THE LAST CENTURY OF THE WESTERN EMPIRE* 148 (2d ed. 1899).

replaced by tales of the shifts the Texan beggars were compelled to by their poverty. The analogy is not an inept one.<sup>28</sup>

## IV

No one who has even a dilettante's interest in archeology and ancient history can avoid being struck by the multitude of ruined cities stretching throughout North Africa and western Asia. Further, so far as any traveler is concerned, when the territories in which they lie are currently examined, the extent of these dead cities would be about as expectable on the far side of the moon. For stony or sandy wastes of a blasted kind, nothing could exceed the condition of the country surrounding Timgad in Algeria, Leptis in Libya, Palmyra in Syria, Nineveh in Iraq, Persepolis in Persia, and Har-rapa in Pakistan. They may be utterly without vegetation as at Palmyra, or possessed of a few twisted trees as in the hills above Timgad, but in each of these illustrations the country looks as if it had been attacked with searing, gouging, upheaving weapons in a protracted and titanic war of total destruction. One is almost convinced by the evidence of his own eyes of the truth the few Arab inhabitants still repeat: that giants built these civilizations and that it had to be giants who destroyed them.<sup>29</sup>

But giants were never involved in either part of this process. Excavations show that settled agricultural village life appeared in the regions around the Fertile Crescent anywhere between 14,000 and 8,000 B.C. Such life forms seem to have developed gradually as the influences from the last Ice Age diminished; and out of these farming communities there gradually evolved the brilliant cities of the Surarians and those people who came after the Sumarians as city-builders and extenders of urban-commercial society.<sup>30</sup> The societal type, which was well established on the Plain of Shinar by 4,000 B.C., continued rising in its splendid ascendancy probably until about the time of the birth of Jesus, when the decline began that ended in a catastrophic break thirteen centuries later under the Ilkanate of the Mongols. During the ascendancy, however, there occurred all the grandeurs upon which western civilization came to be built.

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<sup>28</sup> The condition of the Mezzogiorno has long been typically one of poverty, illiteracy, corruption and crime. C. SEYMOUR and D. FRARY, *HOW THE WORLD VOTES* 116-19, (1918), and WEST, *CHILDREN OF THE SUN* (1957).

<sup>29</sup> The location, originality and sweep of these civilizations is made evident in the opening of Lord Russell's *Wisdom of the West*, B. RUSSELL, *WISDOM OF THE WEST* 10-11 (1959).

<sup>30</sup> H. FRANKFORT, *THE BIRTH OF CIVILIZATION IN THE NEAR EAST* ch. 3 (1956).

Western man cannot overlook the fact that culturally he is a product of western Asia. Due to the success of Alexander, unprecedented before or since, in homogenizing a new syncretistic culture, there existed by the third century B.C. something into which Europe could be submerged: a combination of Greek philosophy, Persian bureaucracy, Phoenician commerce, and west-Asian agriculture that is summarized in the texts as Hellenistic culture.<sup>31</sup>

Against the established complexities of Indian and Chinese civilizations, Hellenisticism made minimum impact, ultimately expiring in western Tibet and the Indus Valley. But Europe and North Africa responded like vacuums to an in-rush of air. Rome became the vehicle whereby Hellenistic culture was moved as far as the British Isles; Christianity the means through which the rest of Europe received it; and the revival of classical lore in the Renaissance became the instrument which made possible its carriage to the New World and beyond. Long after Ur and Babylon had become Biblical evidence only, the civilization which had grown up from their beginnings had been transported continents away.<sup>32</sup>

Why then should the source of all this have become a desert? Some have blamed it on Islam, which enabled desert Arabs to conquer and destroy an agricultural economy to which, as Bedouins, they would be indifferent or hostile.<sup>33</sup> But this scarcely matches the Arabic performance for hundreds of years after that conquest. A dispassionate observer could only conclude that the Arabs carried on the brilliant civilization to which they had succeeded until somewhere between the thirteenth and the sixteenth centuries, at which time that noble and ancient economy collapsed from Persia to Morocco into the economic apathy which marks that region today.<sup>34</sup>

Again some have explained what happened in these three centuries (1200-1500 A.D.) as the result of foreign invasions, with this time the Turks and the Mongols serving as villains rather than the Arabs. Others explain the socio-economic decay as a function of a reactionary, spiritualistic, Islamic counter Reformation. They assert this turned the Moslem from matters of this world to that fatalism which defeats the chance at change right in the very thought

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<sup>31</sup> W. ALBRIGHT, *FROM STONE AGE TO CHRISTIANITY* 239 *et. seq.* (2d ed. 1957).

<sup>32</sup> The drawing of Rome and Europe into this eastern orbit is set out briefly in M. GRANT, *THE WORLD OF ROME* (1960), in one intellectual area after another.

<sup>33</sup> R. KERR, *LAND, WOOD AND WATER* 19 (1963).

<sup>34</sup> See, for example, the historical materials in D. CAPONERA, *WATER LAWS IN MOSLEM COUNTRIES* (FAO Development Paper No. 43, March, 1954).

processes of the man who otherwise might have possessed an innovative intellect. It is a metaphysical explanation hard to find the evidence to refute.<sup>35</sup>

However, as to the Turkish devil as the source of all ill, one must ask: Does the traditional Turkish farmer treat the land much differently than his predecessors? Did the farmers act otherwise who formed the economic base for the numerous empires and imperial cities that once crowded the confines of what is now modern Turkey: the Hurrians and Hittites, Lydia and Lycia, Bithynia and Galatia, Ephesus and Byzantium? In time, they stretch from fable to fable, that is from Troy to Trebizond; and in that time, the area passed from virginity to exhaustion of resources between about 2,000 B.C. and 1,500 A.D.<sup>36</sup>

The Turks did things very little differently than previously had been the case; nor ought this have been surprising. Racially, today's Turk is the descendant of the people who preceded the Seljuks and Ottomans. Relatively scarce in numbers compared to the conquered, they imposed upon them the Turkish language in lieu of the Greek previously required of them and converted them to Islam from the Christianity which similarly had been imposed upon them. Having been compelled to become Byzantine Greeks, the Anatolian peoples as easily became Turks—and throughout both processes it is highly doubtful if any change took place in the way natural resources were treated. This continuity certainly continued for the people who resisted Turcanization: the Armenians, the Kurds, and the historic Greeks of Ionia.<sup>37</sup> In brief, so far as land practices were concerned, the Turkish conquest probably meant little in the way of change.

But blaming the Turks dies hard; and when it is not the common Turk who is blamed, it is the rottenness of the Turkish administration that is held accountable. Without for one instant defending the corrupt aghas, pashas, and beys of the Turkish sultan, more prescient observers have noted the economic decadence of the Eastern Roman Empire and the increase in governmental revenues the Ottoman fisc enjoyed in comparison to the Greek emperor for nearly two centuries after the conquest. If anything, this would indicate the Turkish administration was at least no worse; nor ought

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<sup>35</sup> F. HEER, *THE MEDIEVAL WORLD* 191-93 (Sondheimer, transl., 1962). As he puts it, in the 13th century the Moslem world began "suffering from hardening of the arteries." *Id.* at 194-95.

<sup>36</sup> A book illustrative of the rich variety of this area in its period of rapid rise in historical prominence is S. LLOYD, *EARLY ANATOLIA* (1956).

<sup>37</sup> On the ethnography of the Late Byzantine Empire, S. RUNCIMAN, *BYZANTINE CIVILIZATION* 144 (1933).

it to have been, since the administrators continued to be Greeks. The surge in revenues doubtless resulted from the re-establishment of a single trading area for the region and the cessation of the violent, triadic Greek-Turkish-Armenian wars which had so long continued. Indeed, the Turks imposed on Anatolia a peace it had not previously known when so many peoples had struggled for hegemony within it. Thus it seems hard to lay only blame upon the Turkish administration.

Yet despite the peace brought to Anatolia, it has never had the prosperity it owned in the days when its control was most disputed. Revenues from the land seem to have begun their decline at least as early as the eleventh century A.D. Bad Greek, Frank, and Turkish rulers, with their wars and confiscations, may have pushed along the decline; but these sovereigns scarcely caused it.<sup>38</sup> Croesus, Mithridates, Justinian—to name only three of the many imperial personalities who repeatedly rose in the area—surely did not make smaller demands upon the area; and yet they were borne by the local economy either without strain, or with a snap-back sort of recovery.

The same story was true in the areas to the south. Were any rulers more demanding of luxury than the Seleucids? Yet when they were gone, their empire produced new and still richer cities, with which the Romans dazzled themselves. And afterwards this continued to be true right through the reign of Haroun-al-Raschid and his Baghdad of one million inhabitants. A macro-economist, knowing the history of the region from Sumer to Haroun's day would have been confident in assuring Scheherazade that it would continued to produce ever-renewing riches and cities more grand than their predecessors.

He would have been a mistaken macro-economist of course. By the eleventh century A.D., the decline was felt there too, as it was throughout what once had been the wealthy Orient. The skid had begun from a reputation of embarrassing riches to one of equally embarrassing beggary, to be but little relieved by the oil revenues in the past generation.<sup>39</sup>

Nor does it seem that this skidding change can be explained in terms of a previous climatic transformation. First of all, the eco-

<sup>38</sup> *Id.* at 76-81, on the revenue systems of the Byzantines and their steady deterioration before the Turkish Conquest. In fact the one permanent factor in the tax systems of the area was their primary reliance upon agriculture. A. JONES, *LATER ROMAN EMPIRE 464-65* (1964).

<sup>39</sup> H. MÜLLER, *THE LOOM OF HISTORY* 365 *et. seq.* (1959), reviews the gradual decay of the Middle East through the 19th century, attributing it to the decadent bureaucratic system of the Ottomans. *Id.* at 360.

conomic decay of the Near East was a gradual business. Even where the Mongol destruction of the irrigation system of the Fertile Crescent precipitated a sudden population break, this effect was superimposed upon a long-standing decline in crop production and stagnation in the economy. The realization of travelers that they were passing through a barren rather than a burgeoning country seems to have taken centuries to percolate through the expectations they brought with them. The Crusaders entered when western Asia was on its downward trajectory and still were awed by the wealth. Not until the seventeenth century was the situation everywhere throughout the Middle East so appallingly bad that reports of poverty became the routine.<sup>40</sup>

Secondly, the evidence is against climate change wherever a fragment of something like the original biota has survived. Bits of these have been found from Morocco right through to Afghanistan; and if prior alterations of climate accounted for today's deserts, there would be no such survivals. Then, too, wherever the soils were not impregnated with mineral salts or else worked clean of all nutrients by ancient agricultural practices, when water once again was supplied by irrigation, there has been amazingly rapid recovery of desert soils for farming.<sup>41</sup>

The Israelis constantly reveal how a land not effectively employed in centuries can be made productive by techniques last used by the Nabataeans. To us, Sinai is a nearly uninhabitable desert; and yet once it could support people who probably invented the alphabet. The success the Israelis are having in the Negev and south of that, paralleling the kind of economy which once flourished there, proves the climate to be not too dissimilar. Indeed, the time spans are so geologically short that it would be difficult to believe in much change having occurred.<sup>42</sup>

No, the cause of that land's desiccation has probably been more the result of land use than any alteration in climate. Ruthlessly every tree for thousands of miles has been lumbered off and the hills overgrazed. Savannahs, where lion once were hunted by kings, were broken to the plow. Crops were planted in neat fields for thousands of years; and the copious production from harvests, shear-

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<sup>40</sup> *Id.* at 372, on traveler's accounts from the 17th century A.D. onwards.

<sup>41</sup> Vogt, *supra* note 10, at 235.

<sup>42</sup> As *Time* put it: "As late as 1950, Israelis relied on wells, rain tanks, and collection systems. When there was no rain, they could only pray. Now Israelis have drawn up a master plan. . . . So well managed is the country's water supply that nearly 90% of all possible sources are being used". *TIME*, Oct. 1, 1965, at 79A.

ings, slaughterings, tree-cuttings, and irrigation built the greatness that was Babylon, Baalbek, Pergamum, or where have you. Erosion of fabulous proportions, the siltation of rivers, the drying up of headwaters, the waterlogging of coastal plains, sand storms, and spreading biotic sterility came afterwards.

The soil from the deforested hills and the irrigated fields moved the sea almost two hundred miles from Abraham's birthplace of Ur. Steady run-off, from a region too bare of cover to absorb it, swamped Ephesus and buried it in a malarial marsh. Silt, once the richness of Syria, eventually destroyed Antioch, where Cleopatra had displayed herself to Antony. Ultimately each one of the ancient ports were choked to oblivion by this sediment.

Where fertile plains had been, supporting vast herds and dry farming, travelers came to masking their faces against the gravelly dust storms and padding their bodies against the furnace-like heat in an area scoured and seared by wind and sun. Lands that once supported cattle and horses and a wide variety of wild game can today scarcely feed the sheep and goats whose tiny hooves dice the land ever further.

By exploiting without regard for replacement or survival resources originally abundantly present, the men of the area built first greatness and wealth for their societies and later poverty and, in most cases, oblivion. The reason, insofar as the climate, the soil, and the water in this zone cannot support human society—or, for that matter, much of any kind of biota—is not to be found in the Heavens but in what was done to that very earth. In that respect, western Asia and North Africa are filled with memento and reminders for the present global urban-industrial society.<sup>43</sup>

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<sup>43</sup> P. SHEPARD, *MAN IN THE LANDSCAPE* 51-60 (1957). As has been said of Sicily, "Surviving natural woodland now covers only three-quarters percent of the island....The endemic silver fir, *Abies nebrodensis*, survives as one wild population of about twenty trees...[E]xtensive cereal cultivation (mostly wheat) covers most of the interior and the south coast. Although green in spring, by mid-summer the cornfields have become parched and desert-like....In many lowland areas and on stoney hillsides, previous woodland is now replaced by those *macchie* and dwarf scrub communities, so characteristic of the Mediterranean region....Many remarkable plants have survived on Sicily since pre-Glacial times....If you come across them please do not make them any rarer than they are! Sicily is surprisingly lacking in interesting wildlife...but there is a large variety of wildfowl and migratory birds." C. KINNIMOUTH, *SICILY* 47-48 (1965). The description could apply to the whole Mediterranean littoral and worse in the interiors to the east, south and west of the basin.

## V

After all, it was in western Asia that the Garden of Eden reputedly existed; and the image of the Garden of Eden has remained most influential. Not only is it part of the Golden Age from which everything descends; but it also represents the cornucopia kept pouring out its goodness by God himself. It is savannah, with its rolling grasslands, occasional trees, and accessible small streams, which is the most congenial environment in which man can quickly build a flourishing population. There are the grasses for his kine, game for his family, little valleys easy to plant his crops in, trees for shelter and shade, and always open space for movement.<sup>44</sup> Those who claim east African origin for humanity say it was just such a topography which made possible the emergence of man and gave him a place of nurture for his kind until he had strength to venture out into the rest of the world. Out of this, it is even argued man has an instinctive preference for the savannah.

Instinct of this sort seems atrophied in man however, and replaced with preconceptions passed on through the generations as part of common sense. When the American settlers reached the Great Plains they stopped for a full generation. Themselves of European extraction, where good land began as forests, and having spent two hundred years cutting halfway across a Continent, they could not believe land without trees could support settlement. In a limited way they were right for, when they stopped the conflagrations traditionally set each year by the Indians, the northern forests encroached upon the plains.<sup>45</sup>

The American pioneer was oriented to forests and hung back from the plains; and yet what he sought for all North America was the creation of a vast artificially created savannah. He carried with him everywhere the ideal of the Garden of Eden—in his songs, his promotional literature, his accounts of his personal experiences—and he meant someday America should be every bit as beautiful as those places he read of in his Bible: Eden's garden, a land flowing with milk and honey, cities with their hanging gardens, and such like similies. In brief, he meant to make North America as perfect in the future as his Bible (and if he were an educated man, Herodotus and other classical writers) told him western Asia had been.<sup>46</sup>

<sup>44</sup> L. LEAKEY, *ADAM'S ANCESTORS* 21-25 (1960) gives an account of conditions theoretically most favorable to human development.

<sup>45</sup> D. ALLEN, *OUR WILDLIFE LEGACY* 62-63 (1954).

<sup>46</sup> "[P]rimarily, the West was the farmer's frontier.... The American Western farmer began with a subsistence economy—but he did not linger long there.... He was always a member of the middle class in America..." L. HACKER, *THE SHAPING OF THE AMERICAN TRADITION* 332 (1947), and see *id.* at 735-41 on contemporary publicity used to lure pioneers.



The savannah of the Fertile Crescent—indeed the whole of the classic world from the Roman Campagna to the plateaus—was just such an idyllic garden in its different parts for varying lengths of time. How long any area remained such a garden depended upon the resource capital it held originally, how rapidly that capital was converted to commercial wealth, and how quickly the environment developed resistance to this kind of use.

This probably accounts for the relatively brief grandeur of the region's mountain-and-plateau states compared to the protracted majesty of plain-and-valley cultures. The coves and benches of the mountains have only their own wealth for use, while the valleys have their own resources plus those of the mountains; and only when the latter is exhausted does a valley economy start to fall. When this occurs, the valley's failure is irretrievable until (and only if) the resources of the mountains are first rehabilitated. The hills are the sustainers of the valleys; and when there is barrenness in the mountains, there can soon be only either deserts or swamp below them.<sup>47</sup>

Lumbering for commercial transport began with the Sumerians. Further, such trade encouraged the expansion of cattle, sheep, and goat herds in the hills, while the prosperous agriculture of the lowlands encouraged the expansion of dry farming (and, later, irrigation) onto the slopes. Initially, the success was immense, burgeoning populations and the demand for hill products; and it was out of these newly exploited hills that there came the successive conquerors and civilizations of Akkadians, Medes, Persians, Hittites, and others. But as the empires rose, the condition of the land went down, doing so far more rapidly than the resources of the valleys. Despite the erosion of valley land and its steady mineralization, what ultimately overwhelmed the lowlands were silt from the gully-ing of the highlands and the gradually erratic stream flows resulting from degradation of the land around their headwaters.<sup>48</sup>

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<sup>47</sup> LORD, *supra* note 6, at 98-103, using examples from the research of Walter C. Lowdermilk.

<sup>48</sup> Interestingly enough, the Egyptians of the Middle Dynastic Period regarded Syria, Sinai, and Asiatic lands to the east as "afflicted with mountains, trees and rain" and referred to the "miserable Asiatic... with a land troubled with water, inaccessible because of the many trees with its roads bad because of the mountains" Wilson, "The Nature of the Universe", 52 and 47 respectively, in *BEFORE PHILOSOPHY* (Frankfort et. al, eds., 1946). At an even earlier date, however, the Sumerians had already begun planting trees to protect their gardens from the "dust of the mountains". S. KRAMER, *HISTORY BEGINS AT SUMER* 71 (1956).

What happened over the thousands (and sometimes only hundreds) of years was the steady and unreversed desiccation of the area, a desiccation spread as far west as Spain as the resource-use methods of western Asia were extended towards the Atlantic. The sort of sward congenial to nymphs, satyrs, and lyric poets represents a decline toward the sere. What came to be regarded as nature at her best, most benign, and pristine—celebrated by Greek poets, Roman philosophers, and the religious writers from Zoroaster to the Church Fathers—represented a state of decline.<sup>49</sup> It was a long golden afternoon; and at the end, events rushed on inevitably to night and desolation.

## VI

Here in western Asia was the source of Eden, and its very model, in western thought. It acquired a further poignancy because of the concept against which the garden was continuously compared: the wilderness that lay beyond the pale of settled civilization, the forelorn lands where beasts and a few barbarians roamed. The First Parents had been cast out of Eden, condemned to extract from the wilderness the means of life, and forever striving to make out of the wild lands the ideal garden.

History, however it began for mankind, is the story of the changing of the original state of nature to some purpose man has conceived as in some way more suitable to his wishes.<sup>50</sup> The beauty of settlement is enhanced by the human memory of what existed before change and of how inhospitable to man had been those conditions. Wherever the wilderness persisted, this survival was regarded with emotions varying from hatred to irritation, depending upon the degree of menace the settled areas seemed exposed to by its proximity.

Only well into the twentieth century could wilderness in its primeval stage (or as near it as possible) be thought worth keeping unchanged. And even so, such wilderness promised to be comparable to the romantic tangles left in late eighteenth century gardens, just to show the extent of the gardener's skill.<sup>51</sup> Given the intensification of the effect of urban-industrial society throughout the world, little else seems possible. Before such growth, even the wildernesses of the Amazon and Congo shrink. More intense use

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<sup>49</sup> P. SHEPARD, *MAN IN THE LANDSCAPE* 61 (1957).

<sup>50</sup> Willard Hurst explains the impatience with such conditions in terms of efforts to overcome scarcity. W. HURST, *LAW AND THE CONDITIONS OF FREEDOM* 7 (1956).

<sup>51</sup> This is brought out by A. LOVEJOY, *ESSAYS IN THE HISTORY OF IDEAS* 101 (1949), tracing the idea to ancient China.

lies ahead for them; and one can hope—though quite dubiously, considering what is known of their soil conditions—that they will not come swiftly to the level of the burned out stretches of the Hwang Ho and the Indus.<sup>52</sup>

However, man traditionally has regarded wild lands as his enemy. It is not for him to adjust to wilderness, once he is out of the food-gathering culture. Rather, it is for man to alter wildness to garden conditions, if at all possible; and where such a movement is impossible, to wrest from wilderness whatever can be taken. The darkness of virgin deciduous forest, the empty whistling wind in the perennial grasses of the prairies, the clammy grasp in the humid air of swamps, the menace in the closeness of mountains upon any opening which penetrates them: each of these are the frightening, aspects of wild nature from which man recoils, only to come back with renewed, battering, crunching force.<sup>53</sup>

The twentieth century novelist, with insight peculiar to his time, has caught both the fear in the initial contact with the wilderness and the resolution to subdue that fear by overawing nature in its very essence of everything natural. Conrad Aiken's *The Awakening Land* for the clearing of the eastern hardwood forests,<sup>54</sup> O. E. Rølvaag's *Giants in the Earth*, for the breaking of the north central plains,<sup>55</sup> Harvey Allen's *The Disinherited*, for the penetration of the Alleghenies,<sup>56</sup> Carl Sandberg's *Remembrance Rock*, for the assuredness in the pioneer character that accepted such assaults as necessities laid down by the Bible and by the natural law expounded by the philosophers of the Enlightenment:<sup>57</sup> each of these has captured that transient moment when man begins that transformation of nature's unhuman processes which can never after be undone.

Even the ceasing of human activity will not do it, except in the sense of the geologic time required to produce the conditions which human activity had changed in either absolutely or relatively brief periods. After all, in terms relative to the time needed by nature to produce the resources exploited, the 5,000 flourishing years of the Fertile Crescent were short. Only comparisons with the exhaustion of the Virginia Tidewater by tobacco in two hundred years, or the

<sup>52</sup> The concept of the "social forest" of the future is developed in Bourlière, *A New Balance Between Man and Nature*, in 1 *THE WORLD IN 1984*, 51 (Calder, ed. 1964).

<sup>53</sup> On the role of "habitat theory" in historiography, see F. TEGGART, *THEORY AND PROCESSES OF HISTORY*, 229-32 (1941).

<sup>54</sup> C. AIKEN, *THE AWAKENING LAND* (3 vols. 1940, 1946, 1950).

<sup>55</sup> O. ROLVAAG, *GIANTS IN THE EARTH* (Colcord & Rolvang, transl., 1927).

<sup>56</sup> 1943, 1944, 1948, 1950, though never completed and published in an edition by Julie Erdesheim in 1950 as *The City in the Dawn*.

<sup>57</sup> C. SANDBERG, *REMEMBRANCE ROCK* (1948).

Appalachian highlands with corn in one hundred years, or some of the Dakotan and Oklahoma prairies with grazing and wheat cultivation in less than 25 years, make the history of the richness of western Asia seem long.<sup>58</sup>

Without being panicky about the matter, the course from primeval wilderness untouched by man to blighted desert exhausted by man's touching has been both too frequent and too brief to support any blithe spirit of optimism. If the future is to have a promise of indefinite prosperity, such a promise cannot be derived out of many past experiences. In this regard, history is rather gloomy as a prognosticator.<sup>59</sup>

Certainly, whatever the harm done in the slow desiccation of the landscape when man treats it as his Edenic garden, this is nothing to the damage he wreaks if he sees the landscape as wild. In that event, he becomes about like a buccaneer looting an armada of treasure ships, confident that there will always be more riches coming from where those burning galleons sailed. Nature is then seen as a cornucopia constantly pouring out her wealth, or as an enemy continuously replenishing her stock of weapons. But whichever the image, the common element is man's belief he need do nothing himself except take or destroy. The opposition to his pressure, he is certain, will never lessen.

When trees are cut, more will grow in their place; when grass is grazed off, the next season will find another cover waiting for the browsing animals; when brush is burned over, more will come in a never-ending battle at clearance: the list of expectancies could go on forever, right up to the farmer who has faith that topsoil replaces itself best when it is most heavily used. Even when gullying erosion has reached depths of over forty feet and it is gravel which washes from the plowed barren hills, there will remain those who insist the resiliency to come back still remains, given a little rest. The belief that man need only take from a freely giving nature dies hard; and it dies hardest when the land is seen as wild and as still untamed.<sup>60</sup>

## VII

Yet man as the taker and nature as the sole giver is the traditional view. It stands as much behind the myth of the garden as it does in back of the wilderness angle of sight. In the eighteenth

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<sup>58</sup> HYAMS, *supra* note 16, ch. 10.

<sup>59</sup> For gloomy examples, Africa, VOGT, *supra* note 16, at 253, and Asia, F. TEGGARD, *THEORY AND PROCESSES OF HISTORY* 264 (1941).

<sup>60</sup> An example is the historic exploitation of the world's forest resources. H. BROWN, *THE CHALLENGE OF MAN'S FUTURE* 128-29 (1954).

century, Arthur Young and the other fathers of scientific farming found intense opposition to what they wanted to do in the popular outlook that this was all useless nonsense. Man might be under a divine command to earn his bread by the sweat of his brow, but the source of that bread was equally part of a divine guarantee of a natural fecundity. Among rural peoples, this remains the common, persistent prejudice; and only the steady elimination of farmers from the American land since Henry Agard Wallace's reforms in the mid-1930's has made scientific farming the prevalent practice in the United States.<sup>61</sup>

This is not to say that scientific farming, built as it is upon the premise of success through ever larger production, can be by itself the answer. But the traditional methods, which (with a few exceptions like South China) allow little or no role to human restoration, are clearly not enough. Total dependence upon a natural process of replenishment must cease, especially as the production demands of urban-industrial society cut into the ecologic relationships which make up these processes in nature.<sup>62</sup>

The Nile Valley, insofar as it has missed the gradual economic decline of the eastern Mediterranean region, has done so due to the gentle renewing annual floods which leach out mineral salts from the soil, deposit a layer of silt from the eroded top soil of the abused up-lands, and saturate deeply a strip of rich ground through an otherwise arid country. Unless the Egyptians find some way for human endeavor to undertake these tasks, the dams and reservoirs of the Nasser era could prove the tomb-robbers of the Nile Valley's final riches.

Yet, in the face of a need for greater agricultural production to meet the demands of an exploding population and a faltering commerce, science has had little time for these natural services and has expended the greater ingenuity in moving a few temples above the rising waters. Unless the Egyptians assume responsibility for replacing the natural regimes they have displaced with equally effective devices, those relocated temples probably will be approachable in the future either by desert or silty bogs. The ecologic and economic desolation around them will be evenly distributed.<sup>63</sup>

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<sup>61</sup> E. HIGBEE, *FARMS AND FARMERS IN AN URBAN AGE* 17-18 (1963).

<sup>62</sup> Persistent conservatism in such areas of thought, however, is a rural cultural phenomenon. P. LANDIS, *RURAL LIFE IN PROCESS* 69-71, 91-92 (1940).

<sup>63</sup> Walter Lowdermilk observed in the late 1940's that the already existing Aswan Dam, through making irrigation a constant, had waterlogged the soil, impacted silt layers, accumulated salt, diminished some acreage's crop yield and produced the need for a drainage system. LORD, *supra* note 6, at 102. The far greater dam coming to completion can only have a far greater result.

Man, if his prosperity is to survive sufficiently to sustain the globally spreading urban-industrial society, must cease utterly in seeing himself as only a taker from nature. From the aspect of his destructive capacity, man has ceased being the puny antagonist of nature whose existence left scarcely an impression. However right *Ecclesiastes* is concerning our transiency as individuals, as a species the swathes so far have been cut deeply, widely and with apparent permanence through natural processes.<sup>64</sup>

A single shepherd can mean little in lush plateau country. A pastoral civilization, deriving its whole sustenance there, means more will be taken from that very same area. When these pastoral people give up the effort to get all they need for living from their own handiwork and begin to trade the graziers' production for other goods, there is an even greater burden on the region. And when their production is tied into the financing and manufacturing processes of an urban-industrial society, then the burden that region must support grows heaviest of all—becoming, too often, a burden that collapses the ecology of the affected lands.

Somewhere along this line of development, if it is not to terminate abruptly, there must be funds, energy, and creativity supplied to make up for what is taken. If this responsibility is not assumed soon, the growing new deserts in places as far apart as Wyoming and Kenya will be proof that the urban-industrial society of the twentieth century had no more grasp of ecologic values than the urban-commercial society of the eastern Mediterranean at the time of Jesus.<sup>65</sup>

## VIII

If this refusal to change roles from mere ward to responsible guardian of nature were to persist, the reasons for it would lie more in the refusal to alter the preconceptions around which definitions of reality are formed than in the pursuit of simple greed. One cannot overlook that emotion, of course, in either its direct or its indirect forms. The promoter, who levels Paraguayan forests to support orgiastic living for himself in Spain, is the direct example. The policy-maker, who orders deep-plowing on the shifty soils of North China in order to secure more grain for foreign exchange, is the indirect variety. Both, however, are examples of greed in

<sup>64</sup> In fact, as the recreationist, Roger C. Thompson puts it: "If our civilization implies the destruction of the amenities, is it civilization?" THOMPSON, Book Review, *FOREST HISTORY* 36, 37 (July, 1968).

<sup>65</sup> A plea of this sort for United States' renewable resource policy ends the classic by B. HIBBARD, *HISTORY OF THE PUBLIC LAND POLICIES* 565 *et. seq.* (1965), but the need is world-wide.

desolating operation, with maximal effect upon otherwise constant, self-renewing aspects of nature or, in purely human terms, of the living or self-replenishing resources.

After all, pest or resource, detriment or benefit, profit or loss, cost or benefit are human terms without correspondence in nature. In nature, all this is neutral stuff. The nearest nature can come to these concepts is the help or hindrance a particular event is to the operation of some species in relation to others or how such an event affects the balance within some ecumene. Man is in his being just another such species; and for him to call others pest or resource is not to pass judgment upon nature's character but to assert this species to be hindrance or help to man. To see it differently is to anthropomorphize all of nature, to make it all part of man's household.<sup>66</sup>

And this is all right—even inevitable and part of some long-term human good—if man is self conscious about what he is doing. The traditional views of nature as garden and as wilderness, as tractable ally or unconquerable foe, as an entity in any event apart from man, must be rejected. Man is a part of nature: there is no dichotomy possible for them. What man does possess is the faculty to reflect upon nature; and he must use this faculty to help him perceive his place in nature rather than using it to feed ancient illusions of separateness.<sup>67</sup>

This faculty of viewing, even when it is confirmed by the preconceptions through which it functions, finds avenues to new vistas. Analogy has been the way for this escape in the past; and, through its two-way reach, it will be in the future, one of the ways out of the traps of tradition, common sense, and just blind prejudice against any sort of change as a source of discomfort. The terrors of change, however, are a discomfort far more worth bearing, if out of it can come the avoidance of so many horrors imposed in the past by man upon his resisting environment.

Indeed, it is out of this resistance that the greatest threat lies to a persistent uncaring human activity. Potent as man has been, is, and predictably can be in relation to nature, such power can not be pushed indefinitely or without regard for the natural processes that had been operative before the pressure of human activity was exerted. As the human force is applied, the environmental resistance

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<sup>66</sup> Brandt, *Moral Presuppositions of the Free Enterprise System*, in *THE INTERCOLLEGIATE REVIEW* 111-12 (Oct. 1965).

<sup>67</sup> R. DUBOS, *MAN ADAPTING* 8-10 (1965).

to it builds; and if the relationship continues on this line, the human activity ultimately will be thrust out.<sup>68</sup>

When the grass goes, so do the sheep and their shepherd. When there is no soil or water, there are no crops or farmers. And when the biota of a region are unable to sustain themselves in kinds and quantities needed by man, there are no more cities or form of urban life left in that locality. Though it may sound apocalyptic, this is the way environmental resistance has functioned in the past; and unless human activity is coordinated with it, rather than against or in ignorance of it, that is the way environmental resistance will work in the future.<sup>69</sup>

This need not be the case, of course, if a different view is applied to nature, say that of the laboratory. If everything done were monitored for its effect, if the reports from the monitors were compared to the predictions, if plans were altered as the monitors indicated they ought to be, if controls were run continuously to check upon the monitors, in short if responsibility were assumed for the totality of man's acts, then the future—meaning any time after 2000—would be more hopeful.<sup>70</sup>

Presumably, laboratory conditions seem too sterile for some, too anti-natural if all of nature is seen just as one vast human experiment. It conflicts too sharply with the preconceptions of their vision; and they are not swayed by counter-claims that a vast series of human experiments has been increasingly the sum total of nature—except that these have been uncontrolled ones, unresponsive to and incapable of producing any learning from failures. They prefer some image warmer, more organic, more lively than that of the well-controlled laboratory; and in that lies the irony.<sup>71</sup>

Terms matter, and a term must be found that lacks the blanched purity of *laboratory* or the debasing relations of the word *zoo*. Perhaps *ecumene*, or world-household, or the self-renewing society

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<sup>68</sup> Kenneth E. F. Watt calls such resistances "homeostasis", which is the mechanism organisms had evolved to respond to catastrophes, K. WATTS, *ECOLOGY AND RESOURCE MANAGEMENT* 424 (1968) and illustrating his thesis from the 1961 New York gypsy moth program, *id.* at 62-69.

<sup>69</sup> For example, see Caudill, *Paradise Is Stripped*, in *NEW YORK TIMES MAGAZINE*, March 13, 1966, 26 *et. seq.*

<sup>70</sup> This sort of control is what must be behind the technological optimism in COMMITTEE ON NATURAL RESOURCES, *NATURAL RESOURCES* 23-27 (NAS-NRC. Pub. 1000, 1962).

<sup>71</sup> What laboratory technique can mean in the face of a biological disaster is revealed in MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM, *TORREY CANYON, POLLUTION AND MARINE LIFE* (Plymouth Laboratory Report 1968).



would be happier expressions: but this is only a part of the need to switch to a highly different traditional view of nature. Circe's cornucopia is broken; the Dionysiac revels are at an end; Pan is dead; and there can be no more long golden afternoons in a desiccated landscape for Arcadian shepherdesses and swains.

Man now perceives his powers, his limitations, and his responsibilities with increasing clarity. The preconceptions currently are changing with swiftness, and so is the thinking utilizing them. The change, in truth, has reached the stage where man realizes whether he hurts or benefits his environment is a question of technique and will: no more than these, but, inescapably, no less.

What must not be allowed to grow up is a new tradition, taking from biology, mechanics, and economics the materials for a conception capable of observing only the extractive relation of man to nature. This would see the environment as a mine for man's use; and the future would be only a delayed debit, or something for future generations to live out on other planets. It is already a popular myth, another prism in the view which sees a separateness between humanity and the matrix from which is derived the substance of living.

Under this theory, the corporate farmer is justified in reducing topsoil levels on the economic grounds that what is not required for present operation is expendable surplus. As an idea, it sustains him in procuring mammoth machines which by their cost make him consolidate fields, thereby ripping out the rich biota of hedgerows, and thrust him into some sort of monoculture. Technology combines continuously with economics to make of land use this sort of mining enterprise; and if the forming patterns are not reshaped while there is malleability in them, the last chance for long-term positive control over nature by man will be thrown away.<sup>72</sup>

New preconceptions for the common man of this and future generations must be formed so that reality can be responded to in a way that does not bring human culture to a terminus. The common man—peasant, fisherman, industrialist, banker, politician, to name a few of the occupations meant by that term—must not come to see nature as a mine and his future salvation as a rocket ride to Mars, where all the old worldly mistakes can be repeated.<sup>73</sup>

<sup>72</sup> Gaffney, *Soil Depletion and Land Rent*, 4 NATURAL RESOURCES J. 537 (1956).

<sup>73</sup> The worship of the ever-growing Gross National Product—more reserved now than formerly—has often seemed headed on such a path, Leontieff, *Bigger or Better*, in NEW YORK REVIEW OF BOOKS, Oct. 10, 1968 at 31-35.

He must cease to see it as a wild enemy or as a freely giving madonna: Zeus, the Plunderer, and Ea, the Nursing Earth-Mother, are alike poor and anachronistic images of what needs to be conveyed.

## IX

What finally must be accepted, instead, is the vision of man as the giver to nature, the warden of himself and his environment, the planner who encompasses his present and provides for the future relation of human demands and the natural resources which must meet them. It is another conception by which reality can be seen; and if it is accepted, such a conception will make more possible the sort of continued existence man professes to want. If it is not, so that man continues to perceive everything around him as a garden captured from the wilderness, or, worse, comes to see his possessions as mined treasures, then the future can only be a re-enactment of the loss of Eden. But this time there will be no expulsion, just a self-ordained departure. And the destination will not be wilderness, but man-made desert instead. There is nothing predetermined about it; but if the human vision does not change, the balances of nature throughout most of the world will keep on shifting toward the sere.

There is no single means to such avoidance, just as history shows no one cause of the problem. Neither in the control of population, nor in the prevention of soil exhaustion, nor in barring regional climatic changes, nor in regulating the use of discharge of chemicals does there lie the sole source of difficulty which, if cleared up, will remove forever all obstacles to happy living. Sensitive, intelligent people sometimes have written in such single terms; but the result has been only partial truth—and misleading at that. Man's problem is to be found in his relationship with his environment. It is with that totality, rather than some part of it, man must deal.

What must be applied is the wisdom of the Spanish medical historian Felix Marti-Ibanez when he says:

The organism does not adapt itself to the environment but rather becomes integrated with it; it absorbs it and closes off possible escapes to another ambience that is not its own. Every organism creates its own environment which becomes its natural dwelling, since it is but a prolongation of its organic individuality. The description of the living being must therefore begin with a description of the milieu that it formed, developed, and incorporated into itself... in that tremendous biologic task in which the living being has to rebel against and dominate the milieu...<sup>74</sup>

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<sup>74</sup> CENTAUR, ESSAYS ON THE HISTORY OF MEDICAL IDEAS 243 (1958).

Here he is speaking about the interior of the human body, and the necessity of maintaining there an ever-stable equilibrium for health and life. But the connotations of this statement are far larger, possessing a social as well as individual meaning for the body of mankind. The need for balance within himself, the capacity of his secretions and organs to make their own milieu, are microcosms of man in the world. There too, upon the larger scale, man makes his milieu; and as the dominant organism there, he must have balance between himself and what sustains him.<sup>75</sup>

The situation is just as simple and as complex as that. What is true for man within, in order to keep up his sanity, his physical well-being, and his very life, is also true for man without, that is for man in all his external contacts. The vision he needs is one of man creating his own environment for eternity; and though such an eternal relationship of control and response may prove impossible at the ultimate analysis, as a vision it would be for the best. Assuredly, it would be the most anti-apocalyptic yet held concerning man and his place in nature. Out of this acceptance of stability in the necessarily perpetually shifting dynamics between human-kind and its environment, there could develop a role of enduring freedom for man. Without such acceptance, the prospects for sufficient changes are very bleak, and so is the likelihood of human freedom.

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<sup>75</sup> Claude Bernard, who developed the concept of the *milieu interieur*, employed it with the flexible, non-static style which would be necessary in ecology. J. OLMSTED and E. OLMSTED, CLAUDE BERNARD AND THE EXPERIMENTAL METHOD IN MEDICINE 213-14 (1952).