It is said of the Socratic philosopher, Aristippus, so Vitruvius wrote in the preface to the sixth book of his *De architectura*, that being shipwrecked and cast on the shore of Rhodes and seeing there geometrical figures on the sand, he cried out to his companions, "Let us be of good hope, for indeed I see the traces of men." After making his observation, Aristippus departed for the city of Rhodes (another unique creation of man) and there in its gymnasium talked philosophy.

CLARENCE J. GLACKEN

Traces on the Rhodian Shore

NATURE AND CULTURE IN WESTERN THOUGHT
FROM ANCIENT TIMES TO THE END OF
THE EIGHTEENTH CENTURY

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Preface

In the history of Western thought, men have persistently asked three questions concerning the habitable earth and their relationships to it. Is the earth, which is obviously a fit environment for man and other organic life, a purposefully made creation? Have its climates, its relief, the configuration of its continents influenced the moral and social nature of individuals, and have they had an influence in molding the character and nature of human culture? In his long tenure of the earth, in what manner has man changed it from its hypothetical pristine condition?

From the time of the Greeks to our own, answers to these questions have been and are being given so frequently and so continually that we may restate them in the form of general ideas: the idea of a designed earth; the idea of environmental influence; and the idea of man as a geographic agent. These ideas have come from the general thought and experience of men, but the first owes much to mythology, theology, and philosophy; the second, to pharmaceutical lore, medicine, and weather observation; the third, to the plans, activities, and skills of everyday life such as cultivation, carpentry, and weaving. The first two ideas were expressed frequently in antiquity, the third less so, although it was implicit in many discussions which recognized the obvious fact that men through their arts, sciences, and techniques had changed the physical environment about them.

In the first idea, it is assumed that the planet is designed for man alone, as the highest being of the creation, or for the hierarchy of life with man at the apex. The conception presupposes the earth or certain known parts of it to be a fit environment not only for life but for high civilization.

The second idea originated in medical theory. In essence, conclusions were drawn by comparing various environmental factors such as atmospheric conditions (most often temperature), waters, and geographical situation with the different individuals and peoples characteristic of these environments, the comparisons taking the form of correlations between environments and individual and cultural characteristics. Strictly speaking, it is incorrect to refer to these early speculations as theories of climatic influence, for there was no well-developed theory of weather and climate; it would be more correct to refer to them as theories of airs, waters, and places in the sense in which these terms are used in the Hippocratic corpus. Although environmentalistic ideas arose independently of the argument of divine design, they have been used frequently as part of the design argument in the sense that all life is seen as adapting itself to the purposefully created harmonious conditions.

The third idea was less well formulated in antiquity than were the other two; in fact, its full implications were not realized until Buffon wrote of them, and they were not explored in detail until Marsh published *Man and Nature* in 1864. Like the environmental theory, it could be accommodated within the design argument, for man through his arts and inventions was seen as a partner of God, improving upon and cultivating an earth created for him. Although the idea of environmental influences and that of man as a geographic agent may not be contradictory—many geographers in modern times have tried to work out theories of reciprocal influences—the adoption by thinkers of one of these ideas to the exclusion of the other has been characteristic of both ancient and modern times; it was not perceived, however, until the nineteenth century that the adoption of one in preference to the other led to entirely different emphases. One finds therefore in ancient writers, and in modern ones as well, ideas both of geographic influence and of man's agency in widely scattered parts of their work without any attempt at reconciling them; since Greek times the two ideas have had a curious history, sometimes meeting, sometimes being far apart.

The main theme of this work is that, in Western thought until the end of the eighteenth century, concepts of the relationship of human culture to the natural environment were dominated—but not exclusively so—by these three ideas, sometimes by only one of them, sometimes by two or even the three in combination: Man, for example, lives on a divinely created earth harmoniously devised for his needs; his physical qualities such as skin and hair, his physical activity and mental stimulation are determined by climate; and he fulfills his God-given mission of finishing the creation, bringing order into nature, which God, in giving him mind, the eye, and the hand, had intended that he do. This group of ideas and certain subsidiary ideas which gathered around them were part of the matrix from which in modern times the social sciences have emerged; the latter of course have deep roots as well in the history of theology, ethics, political and social theory, and philosophy. In Western civilization these three ideas have played an important role in the attempt to understand man, his culture, and the natural environment in which he lives. From the questions they have posed have come the modern study of the geography of man.

One does not easily isolate ideas for study out of that mass of facts, lore, musings, and speculations which we call the thought of an age or of a cultural tradition; one literally tears and wrenches them out. There is nothing disembodied about them, and the cut is not clean. They are living small parts of complex wholes; they are given prominence by the attention of the student.

These simple truths introduce a more difficult problem. Where and when does one stop? Let me give some examples. Everyone recognizes that a striking shift in the attitude toward nature occurred in the Latin Middle Ages during

the twelfth and thirteenth centuries. The designed world of that era was more complex than was that of the early Church Fathers, and it bore a lighter load of symbolism. More attention was given to everyday matters and to secondary causes. But in exploring this theme one quickly becomes involved in realism versus nominalism, in modern ideas concerning the origins of science, in changes in religious art such as the portrayal of the Crucifixion, the Ascension, and the Virgin and Child, in the role of the Franciscan order in nature study, in the implications of Etienne Tempier's condemnation of 1277, and in the more realistic approaches to the study of botany—and indeed of the human form. These subjects comprise another work; yet they are suggested by themes in this one.

Galileo—to take a second illustration—pushed aside secondary qualities in his methodology. It proved to be the correct way to make discoveries in theoretical science. This procedure, which could have cleared the way for a purposive control over nature through applied science, contributed less to the development of natural history, whose students found it hard to simplify the variety and individuality of life which were clearly apparent to the senses. Smells and colors were important. In the eighteenth century Buffon in his criticism of Descartes realized the limitations of abstract thought. Natural history requires description, study of detail, of color, smell, environmental changes, of the influence of man whether his acts are or are not purposive. Modern ecology and conservation also need this kind of examination, for many of their roots lie in the old natural history. So we have another book contrasting the history of methodology in physics with that of natural history and biology, noting the obvious fact that teleology continued as a working scientific principle far longer in the latter than it did in physics. We should contrast also the purposive control over nature through applied science with the unlooked for, perhaps unconscious and unperceived, changes that men perpetually make in their surroundings.

Large related bodies of thought thus appear, at first like distant riders stirring up modest dust clouds, who, when they arrive, reproach one for his slowness in recognizing their numbers, strength, and vitality. One thinks of the history of ideas concerned with gardens, sacred landscapes, and nature symbolism.

Only rarely can one look at a landscape modified in some way by man and say with assurance that what one sees embodies and illustrates an attitude toward nature and man's place in it. Landscape painting presents similar difficulties. What indeed are we to make of Pieter Bruegel the Elder's *Fall of Icarus*? An exception, in my opinion, is the history of the garden, whether it is English, Chinese, or Italian. In gardens, one can almost see the embodiment of ideas in landscapes. Is art imitating nature, or is nature opposed to art? Is the garden like a lesson in geometry, are its lawns well raked, or does it suggest

soft rolling meadows? And what does it say about the attitudes men should have not only to their surroundings but to themselves? But this theme would require yet another book; one can see the possibilities in the writings of Siren and in Clifford's *A History of Garden Design*.

In the world as a whole, there are few more inviting themes for the historian of attitudes toward the earth than the role of the sacred. Today the best illustrations come from non-Western cultures, but the history of Western civilization is rich in them too. One thinks of Scully's study of Greek sacred architecture and its landscapes, the possible origins of Roman centuriation in cosmic speculation, the celestial city and the heavenly Jerusalem, cathedral siting in the Middle Ages, sacred groves, and nature symbolism. Indeed, gardens, sacred landscapes, religious and esthetic attitudes toward environmental change by man, entice one into studies with profound human meaning which are not easily exhausted.

There are many illustrations in this work of that separation between man and nature which occurs so frequently in Western thought, and conversely of the union of the two as parts of live and indivisible wholes. The dichotomy has plagued the history of geographical thought (for example, the distinction, which many would now abandon, between the natural and the cultural landscape) and contemporary ecological discussions concerned with man's disturbance of the balance of nature. Essays confidently begin with assertions that man is part of nature—how could he be otherwise?—but their argument makes sense and gains cogency only when human cultures are set off from the rest of natural phenomena. I cannot claim to have clarified this difficult subject. In Western thought, it is too involved in other histories of ideas—in the philosophy of man, in theology, in the problem of physical and moral evil.

Did the distinction between man and nature begin in primordial times when man saw himself, so clearly like the animals in many respects, but able nevertheless to assert his will over some of them? Was it enshrined in Western thought by the Jewish teaching that man, sinful and wicked as he is, is part of the creation but distinct from it too because he is the one living being created in the image of God? Was it in the ancient consciousness of artisanship that men felt themselves superior to other living and nonliving matter? Prometheus was considered to be a supreme craftsman and was worshipped as such, particularly in Attica.

Is another phase of the problem the distinction between the ways in which men have lived their lives, some in the country, some in the town or the city, the former closely identified with what is natural, the latter with the artificial, the creation of man? Did not Varro say that "divine nature made the country, but man's skill the towns," illustrating the old distinction between nature and art? Did this deep-lying conviction gain added strength and incontrovertible proof through the theoretical accomplishments of seventeenth century science and the practical mastery to which they led, awarenesses so vividly expressed

in the writings of Leibniz? What the Arab scientists, the medieval alchemists, Bacon, Paracelsus, Descartes, Leibniz himself had hoped for was now being realized: man had reached the point at which he could be confident of his progressive ability to control nature.

My first awareness of the existence and importance of the history of ideas came to me as a young Berkeley undergraduate when, over thirty years ago, I took Professor Teggart's course on the Idea of Progress. Today I still remember these lectures vividly and possess the classroom notes. Frederick J. Teggart was a man of enormous learning and a superlative lecturer. The *Prolegomena to History*, the *Processes of History*, the *Theory of History*, his review of Spengler's *Decline of the West*, opened up fields of scholarship I scarcely knew existed.

To the reader it must seem that the present work is exclusively a product of the library. Actually, the early stimulus to study these ideas came also from personal experience and from observations which pointed to the role of ideas and values in understanding the relationships of culture to the environment. During the depression years, as I worked with resident and transient families on relief, with migratory farm workers who had come from the Dust Bowl, I became aware—as did countless thousands of others—of the interrelationships existing between the Depression, soil erosion, and the vast migration to California.

In 1937 I spent eleven months traveling in many parts of the world. The yellow dust clouds high over Peking, the dredging of pond mud along the Yangtze, the monkeys swinging from tree to tree at Angkor Vat, a primitive water-lifting apparatus near Cairo, the Mediterranean promenade, the goat curd and the carob of Cyprus, the site of Athens and the dryness of Greece, the shrubs, the coves, the hamlets, and the deforestation of the Eastern Mediterranean, the shepherds of the Caucasus, the swinging swords of Central Asians in the markets of Ordzhonikidze, the quiet farms of Swedish Skåne—these and many other observations made me realize as part of my being the commonplace truth that there is a great diversity both of human cultures and of the physical environments in which they live. It is the difference between knowing about the midnight sun and spending a summer night on the Arctic circle. One is continually asking questions about the circumstances which stimulate human creativity, about the effect of religious belief, about the custom and tradition which men have soaked into their soils. And although I have used abstract words like "man" and "nature" as a convenience, it is really human culture, natural history, the relief of the land that I mean. Phrases like "man and nature" are useful as titles, as a shorthand to express far more complex sets of ideas.

In 1951, living in three small Okinawan villages and studying their way of life, I could see the profound importance of the Chinese family system, altered of course by the Japanese and the Okinawans themselves, and the influence of

the system of inheritance on the use and the appearance of the land. In such circumstances, it seems natural to see differences in traditions concerning culture and the environment, to see the ideas developed in Western civilization merely as a few of many possibilities.

Finally during a year spent in Norway in 1957, visiting its old towns, especially those of the Gudbrandsdal, its farms, an occasional *seter*, and reading about the history of its forests, I saw more clearly and vividly how deep is the European interest in the history of landscapes, the Norwegian interest in the history of farms, the *seter*, place names—in all aspects of rural life. The water-driven saws from the eighteenth century at the open-air museums at Bygdøy in Oslo and at Elverum on the Glomma made me read the literature on environmental change in the Middle Ages with new attentiveness because this important invention was first illustrated in the *Album* of Villard de Honnecourt in the thirteenth century.

In many places one can see evidences of a relationship between religious attitudes toward the earth and the appearance of a landscape, of limitations imposed by a local environment, of the historical depth of changes made in the physical environment by human culture.

When I started on this work in the mid-1950's, I had merely intended to write an introduction to a work based on a doctoral thesis, "The Ideas of the Habitable World," which covered the period from the eighteenth century to the present. Later I decided to give fuller consideration to classical antiquity and to the Middle Ages. Finally, what was originally intended to be a short sally became a major expedition because I became convinced that the origins and earlier histories of these ideas were important and made modern attitudes toward the earth more meaningful; they could also suggest possible comparative studies with Indian, Chinese, and Muslim thought.

I had intended, moreover, to bring the history down to the present, feeling there was a great advantage in showing the sweep of these ideas over two millennia. It was a bitter disappointment, therefore, to make the decision about two years ago to stop at the end of the eighteenth century. The task I felt was now beyond my individual powers. The thought of the nineteenth and twentieth centuries requires a different kind of treatment and properly should be a separate work. The volume of material is too great, but more than volume is involved. The materials are more complex, they are more specialized, and they are widely scattered through many disciplines. In another work I hope to write on certain nineteenth and twentieth century themes in a way consistent with the capacity of a single individual, for despite the indispensability of symposia and other types of cooperative scholarship I still feel there is a place for individual interpretation of broad trends in the history of thought.

Furthermore, I was convinced—allowing for the artificiality of dividing thought by centuries or periods—that in the time span from classical antiquity roughly to the end of the eighteenth century there was a coherent body of

thought gathered about these ideas. Buffon, Kant, or Montesquieu, I think, would have found the classical world strange, but the gulf between their times and classical times would have been less than that between 1800 and 1900.

A historian of ideas must go where his nose leads him, and it often leads him into chilly but not inhospitable regions whose borders are patrolled by men who know every square foot of it. Although I can lay no claim to being a specialist in a particular century or in the classical or medieval periods, my own specialization in the history of geographic thought has forced me to study many periods because their contributions are so great they cannot be ignored. Problems like this must be faced by anyone who wishes to go beyond the narrowest limits. A historian of geographic ideas (especially in the earlier periods) who stays within the limits of his discipline sips a thin gruel because these ideas almost invariably are derived from broader inquiries like the origin and nature of life, the nature of man, the physical and biological characteristics of the earth. Of necessity they are spread widely over many areas of thought.

Whenever possible I have read the original sources, and only in exceptional cases have I referred to the huge volume of secondary literature. I intend here no condescension to these secondary sources, because we often owe newer insights to their scholarship. My general rule has been to cite those to which I am indebted and others which are of interest to, but somewhat peripheral to, my themes. For the most part, therefore, I have made my own interpretations; in some cases the aid of expert knowledge of the text, expositions of the meaning of certain words at a particular time, and the *Quellenuntersuchungen* of the classical period are indispensable; examples are Reinhardt on Posidonius and Panaetius, Lovejoy and Armstrong on Plotinus, Klauk on the geography of Albert the Great. In some cases, especially in chapter 7, I have quoted documents published in secondary works mainly because the originals—often in French or German town and provincial archives, in rare books, or in charters —were unavailable to me.

Because of the great number of thinkers who have discussed the ideas whose history I am concerned with here, a few words should be said about the problem of selection. My general rule has been to select those works which made an important contribution to the idea in question and those which, while showing little or no originality, introduced the idea into other fields or revealed either continuity in thought or the continuing importance of the idea. The *Airs, Waters, Places* of the Hippocratic corpus makes an original contribution to environmental theory; Aristotle does not, but he used environmental ideas in political and social theory. Failure to make a selection would have made my work tedious beyond endurance, for in these fields there are many repetitious scrolls written with different quills. I have also given generous space to a significant thinker at the expense of lesser contemporaries. In the Middle Ages the problem of selection in discussing the idea of design is particularly difficult because it is mentioned by virtually all thinkers; I am con-

vinced that my emphasis on St. Basil, Origen, St. Augustine, Albert the Great, St. Thomas, and Raymond Sibiude is reasonable. In the Renaissance, Bodin's handling of environmental theories is far more thorough than that of any of his contemporaries; in fact, he is often their source. In the eighteenth century Buffon speaks with greatest authority on the agency of man in changing nature, Hume and Kant on teleology in nature, Montesquieu on environmental questions.

This work is concerned only with the development of these ideas in Western civilization; it is thus parochial in the sense that this civilization has furnished unique molds for them. There is no ecumenical thought, although the literature on the scientific method may be an exception. Various great traditions—Indian, Chinese, Muslim among them—have flourished, often in isolation, often interacting with and influencing one another. The Western tradition—its science, technology, critical scholarship, its deep-seated interest in theology, philosophy, political and social theory, and geography—is the most varied and cosmopolitan, partly because it has received and absorbed so much from the others.

A few remarks are in order concerning the frequent use of certain words. "Nature," "physical environment," "design," "final causes," "climate," and other words and expressions which appear in this work have a long history, accumulating different and often vague meanings in the course of time. In the literature, therefore, one cannot find precision where it is not. Often the meaning of words is assumed as being obvious and needing no explanation.

The word "nature," as everyone knows, has many meanings in Greek and Latin and in modern languages. With all of its failings it is a grand old word. When Huxley wrote *Evidence as to Man's Place in Nature* (1863), he discussed man's place in the evolutionary scale of being. When Marsh wrote *Man and Nature* in 1864 he described the earth as modified by human action. Sometimes the word is synonymous with the physical or natural environment; sometimes it has a more philosophic, religious, theological aura than these more matter-of-fact terms express. Occasionally it attains grandeur as in Buffon's reference to it as "le trône extérieur de la magnificence Divine."

In the literature, the words "natural" and "physical" environment have often been used interchangeably. They correspond to *Umwelt* and *milieu*, their use being confined to physical and biological phenomena. They are general terms for the organic and inorganic realms of earth including those changed by man. They are never used in the sense social scientists often use the word "environment," that is, the cultural milieu (upper-class quarter, slums, neighborhoods).

In general "man" is used as a convenient word meaning "mankind"; "culture," "society," however, are the more exact terms. "Man" is so abstract that it conceals the complexities and intricacies which the other words suggest.

For long periods, "climate," "clime," were used in the original Greek sense as a translation of κλίμα; Montesquieu in the *Spirit of Laws* uses it in this sense. In his work on the climate and soil of the United States (English translation, 1804), Count Volney remarks upon the shift in meaning of "climate" which was then taking place. The literal meaning, he said somewhat inaccurately, is a degree of latitude. Since, however, generally speaking, countries are hot or cold according to latitude, the second idea became intimately associated with the first, and "the term climate is now synonymous with the habitual temperature of the air."

Many terms lose precision because of long usage. Generally speaking, "argument from design" has been used interchangeably with a theologically based teleology and with the "doctrine of final causes," although such usages are hard to defend. It has frequently been pointed out that the word "causes" in "final causes" means something entirely different from the usual meaning of "cause" as in "efficient cause." Similarly, physico-theology and natural theology have often been used synonymously with the theologically based teleological view of nature; both terms have also served to distinguish their subject matter and concepts from those of revealed religion. Still others have distinguished between physico-theology and natural theology, including in the latter more discussion of man, leaving to the former illustrations of design in the physical and biological world. William Derham, however, contrasted physico-theology with astro-theology, the former being concerned with proofs of the divine wisdom based on earthly processes, and the latter, from the cosmic order. Historically these expressions are closely related to formulations of proofs for the existence of God by St. Thomas Aquinas, Kant, and others.

It must be admitted that there is no escape from these terms; the confusion exists in the literature. Over eighty years ago L. E. Hicks marched bravely into the swamps; he disapproved of using the terms "argument from design" and the "teleological view of nature" synonymously, because teleology was not the only possible course open to the Creator; he could also establish an order by design. Hicks did not claim that the older teleological view of nature declined *pari passu* with the expansion of the newer scientific view, but he did identify teleology with the older theology, and order with science. The distinction here is one between teleology with emphasis on purpose (not only of every entity in nature but of nature itself) and an order based on natural law without considering the question of purpose. For the latter concept, he proposed the term eutaxiology after the Greek word εὐταξία, meaning good order and discipline. The teleological view led to an emphasis on end or purpose, adaptation of means to ends; the eutaxiological, on order and plan. So far as I know eutaxiology died in infancy for lack of care.

The expressions "web of life" and "balance" or "equilibrium in nature" have often been used interchangeably. They are metaphors suggesting the existence of intricate interrelationships in nature and delicate adjustment

among its constituent parts. One sees likenesses with the spinners of webs, the other is derived from classical physics. Perhaps the "web" calls attention to interrelationships more than does "balance" or "equilibrium," which places the emphasis on delicacy of adjustment, but I have never seen such distinctions expressed.

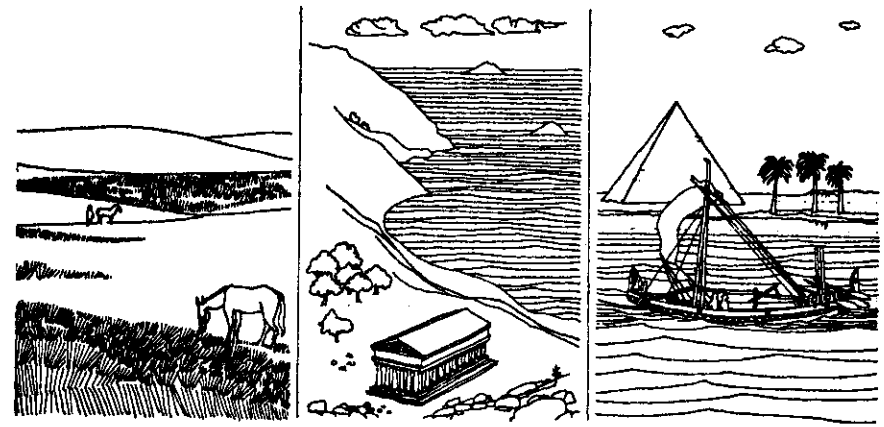
Finally, I should like to say a word about the introduction to Part I, which may seem disproportionately long. It is intended to serve two purposes: to provide the immediate background for the parallel histories of the three ideas in the classical period and to make more intelligible the thought of later periods which, with all the changes enforced by new conditions and circumstances, still rests solidly, at least in part, on classical foundations.

Acknowledgments

I wish to express my deep appreciation to the Institute of Social Sciences, University of California, Berkeley, for its long support of this work and to acknowledge with particular gratitude the many kindnesses of its director, Professor Herbert Blumer.

It has been my good fortune to be a member of a department during the tenure of three chairmen, Carl Sauer, John Leighly, and James Parsons, whose own commitments to and sympathies for humanistic studies have been a continuing encouragement to me; these remarks also apply to my colleague, Paul Wheatley, who in addition has read parts of the manuscript and generously helped me in the interpretation and translation of several passages from classical and medieval Latin. Professor Lesley Simpson's translation of the Laws of Burgos opened up new vistas to me; his deep knowledge of the writings of the Conquest period made me realize how important many of the ideas discussed in this work were in the post-Columbian New World, even if these themes are too vast for exploration here. Since I first took undergraduate courses from her over thirty years ago, I have enjoyed the warm friendship of Margaret Hodgen; her incisiveness and her sensitivity to the history of ideas are once more in evidence in her *Early Anthropology in the Sixteenth and Seventeenth Centuries*, a masterly exposition of early modern conceptions of man and his culture. Her courageous scholarly career has been an inspiration to many of her students.

I am most grateful to my colleagues at the University, Professor John K. Anderson of the Classics Department for reading and criticizing the draft chapters on the classical period; Professor Bryce Lyon, formerly of the Department of History at Berkeley and now at Brown University, for the medieval period; Professor Kenneth Bock, Department of Sociology, for the modern period; and also to Mr. John Elston for the medieval period. The errors which remain are my own. The interest which Professor Clarence E. Palmer, Institute of Geophysics and Planetary Physics, University of California at Los Angeles, showed in this work was a source of great encouragement to me. I wish to acknowledge the helpful advice of Grace Buzaljko, of the University of California Press, and the suggestions by Gladys Castor in her careful copyediting of the text. For several years I have had the valuable assistance of Florence Myer; I cannot speak too highly of the conscientiousness, skill, and patience she has shown in typing the drafts and final copy of a long and difficult manuscript. My wife Mildred through the years has



Introductory Essay

1. General Ideas

What is most striking in conceptions of nature, even mythological ones, is the yearning for purpose and order; perhaps these notions of order are, basically, analogies derived from the orderliness and purposiveness in many outward manifestations of human activity: order and purpose in the roads, in the grid of village streets and even winding lanes, in a garden or a pasture, in the plan of a dwelling and its relation to another.

The Sumerian theologian, for example, assumed an order in the cosmos, created and since maintained by a pantheon of "living beings, manlike in form but superhuman and immortal," who, invisible to human eyes, govern the cosmos according to law. Each of these superhuman living beings was thought to be in charge of a particular component of the cosmos (heaven, the sun, the sea, a star, and so forth). On earth these beings performed similar duties for "natural entities such as river, mountain, and plain; cultural entities such as city and state, dike and ditch, field and farm; even implements such as the pickax, brickmold, and plow." This theology apparently was based on the

analogy of human society. Men had created cities, palaces, temples; without their continuing care, they would fall in decay, and cultivated lands would become like deserts. Therefore the cosmos must also be controlled by living beings, but they are stronger and more effective because their tasks are far more complex.[1]

Such an outlook may be in the background of the idea of a divinely designed earth, that divine power is inseparable from an order of nature. Aristotle said that our ancestors had handed down in mythical form traditions that the celestial bodies are gods "and that the divine encompasses the whole of nature."[2] The earth may be created for man alone, or for all life, even if (as for Job) the purpose is neither apparent nor discoverable by him.

The idea that there is a continuous interaction between man and his environment—man changing it and being influenced by it—also has its mythological antecedents, but its full development belongs basically, I think, to rational thought, because such a conception requires a sense of history. The Sumerian thought the civilization of which he was a part—its institutions, cities, towns, farms, and so on—had been more or less the same from the beginning,

> from the moment the gods had planned and decreed it to be so, following the creation of the universe. That Sumer had once been desolate marshland with but few scattered settlements, and had only gradually come to be what it was after many generations of struggle and toil, marked by human will and determination, man-laid plans and experiment and diverse fortunate discoveries and inventions—such thoughts probably never occurred even to the most learned of the Sumerian sages.[3]

In such myths the gods often are doing what humans do. In the myths of Sumer there is activity, change, creativity. Enki brings order to the earth and arranges for its cultivation; he pours water into the beds of the Tigris and the Euphrates; he stocks them with fish, setting up laws for the sea (the Persian Gulf) and the wind; he creates cereals, he opens "the holy furrows," he entrusts the plow and yoke to the god of canals and ditches, the pickax and the brickmold to Kabta, the god of bricks; he lays foundations of houses, stables, sheepfolds, fills the valley with animals. Of this myth emphasizing the agricultural character of the region and its dependence on water, Moscati says "it is dominated by the specific conception of order as inseparably bound up with existence, so that 'create' and 'set in order' are synonymous."[4]

This passage concerned with origins includes a description of a creative act largely in terms of a sensible husbandman, describes natural phenomena which

[1] Based on Kramer, *History Begins at Sumer*, p. 78.

[2] *Metaph.*, Bk. Lambda, 8, 1074b.

[3] Kramer, "Sumerian Historiography," *Israel Exploration J.* 3 (1953), pp. 217–232, ref. on p. 217.

[4] Kramer, *History Begins at Sumer*, pp. 97–98, including quotations and analysis; Moscati, *Face of the Ancient Orient*, p. 34.

influence life, and the primordial ordering of the environment to make it useful. Enki's acts suggest the theme of God's care for the world so dramatically expressed in the Hymn to the Sun and in the 104th Psalm.

In the myths of many peoples environmental and natural forces affect men; they are personified as are Enlil and Enki. These notions of order and purpose, of divine activity in creating habitable places with their fields and canals for man are the mythical antecedents, I think, from which there emerged in historical time rational speculation about the relation of man to his environment, just as Hippocratic medicine emerged from and was a rejection of an older medicine based on the cult of Aesculapius, whose lore, derived from observation and experience, however, was a rich prelude to the Hippocratic practice of medicine.[5]

These three ideas—of a designed earth, of the influence of the environment on man, and of man as a modifier of the environment—were, however, often modified and enriched by other theories relating to culture growth and to the nature of the earth. The most important of them were the principle of plenitude, interpretations of cultural history, ideas regarding the effects of human institutions (such as religion and government), and the organic analogy applied both to the growth and decline of nations and peoples and to the earth itself. Let us examine each of these briefly.

The origin of the principle of plenitude—the term is Lovejoy's—has been traced by him to the *Timaeus* of Plato. If one asks "*How many* kinds of temporal and imperfect beings must this world contain?" the answer is "*all* possible kinds. The 'best soul' could begrudge existence to nothing that could conceivably possess it, and 'desired that all things should be as like himself as they could be.'" Even if Plato in the *Timaeus* is speaking only of living things or of animals, "with respect to these, at least, he insists upon the necessarily complete translation of all the ideal possibilities into actuality." Plato's "Demiurgus acted literally upon the principle . . . that it takes all kinds to make a world." In stating the principle, Lovejoy says he makes

> a wider range of inferences from premises identical with Plato's than he himself draws; i.e., not only the thesis that the universe is a *plenum formarum* in which the range of conceivable diversity of *kinds* of living things is exhaustively exemplified, but also any other deductions from the assumption that no genuine potentiality of being can remain unfulfilled, that the extent and abundance of the creation must be as great as the possibility of existence and commensurate with the productive capacity of a "perfect" and inexhaustible Source, and that the world is the better, the more things it contains.[6]

[5] Sarton, *A History of Science. Ancient Science through the Golden Age of Greece*, pp. 331–333, and the references there cited. Sarton discusses lustral bathing, incubation and its accompanying dreams in the cult of Aesculapius, and the important role of the herb collectors and the diggers.

[6] Lovejoy, *The Great Chain of Being*, pp. 50–52.

The principle of plenitude thus presupposes a richness, an expansiveness of life, a tendency to fill up, so to speak, the empty niches of nature; implicit in it is the recognition of the great variety of life and perhaps its tendency to multiply. When the principle of plenitude was fused with the Aristotelian idea of continuity, this richness and fecundity of all life was seen as manifesting itself in a scale of being from the lowest to the highest forms, and revealing itself in a visible order of nature.[7]

In the course of this work, we shall frequently see evidence that this richness, diversity, and fullness of life was recognized as an important principle in the interpretation of nature. In natural history, the principle reached its perfection in Count Buffon's work; it is implicit—with concepts of balance and harmony in nature—in early ecological theory. It seems to be fundamental to Malthus' theory of population and his emphasis on fertility. It is significant also that—from premises remote indeed from Plato's or from those Lovejoy derived from him—modern ecologists in stating the scientific case for conservation have said that the more rich and varied life is, the more stable is the ecosystem.[8]

Even in antiquity some thinkers viewed cultural development in terms of a series of stages from a presumed remote origin to the present, a view that implied that cultures could be understood with only casual references to the physical environment; the chief emphasis was on man, his mind, his senses, his techniques, his inventiveness, which, in the acquisition of the arts and sciences, led him from one stage to the next. Although the idea that all cultures go through an ideal series of stages experienced its greatest development after the age of discovery, one finds suggestive hints of the comparative or historical method in Thucydides, Plato's *Laws*, Dicaearchus, Varro, and Vitruvius. Proofs were adduced from observations of contemporary or historical peoples representing various stages of development. In his *βίος Ἑλλάδος*, Dicaearchus, the pupil of Aristotle, had (according to Varro) first suggested the idea of a cultural development from a pastoral to an agricultural stage.[9] The theory was unhistorical because stages were substituted for events; in postulating a conjectural history of the stages through which a people or an institution

[7] Lovejoy, *op. cit.*, pp. 52–62, points out that Aristotle rejected the principle but that the Aristotelian idea of continuity later was fused with it, that the principle becomes coherent and organized with Neoplatonism. See the index *sub nomine* for the subsequent history of the principle.

[8] See Elton, *The Ecology of Invasions by Animals and Plants*, pp. 143–153, 155; Fosberg, "The Island Ecosystem," Fosberg, ed., *Man's Place in the Island Ecosystem*, pp. 3–5; Bates, *The Forest and the Sea*, p. 201.

[9] Bock, *The Acceptance of Histories*, has a brief discussion of the idea in classical times, pp. 43–55. See also, Teggart, *Theory of History*, pp. 87–93 and *passim*. Varro, *On Farming*, II, i, 3–5. See also, Martini, "Dikaiarchos, 3," *PW*, Vol. 5, cols. 546–563, and Warmington, "Dicaearchus," *OCD*, p. 275. For further discussion of D, see chap. 3, sec. 7.

evolved, it neglected the changes in the physical environment made by specific people at specific times, and ignored the fact that different peoples have lived in different physical environments.

In addition to these theories of culture growth, there were the all-embracing theories of cyclical change and degeneration from a golden age. The idea of a cyclical growth in the life of nations and states, following the analogy of the life cycle of an organism, as well as the idea of eternal recurrence, was common in antiquity.[10] The organic analogy becomes important to our theme when it is applied, as Lucretius applied it, to the earth itself: it would grow weary with age and would die like any other mortal. The constancy of nature throughout time was denied, and a decline in the fertility and bounty of nature was to be expected as a matter of course. Echoes of this idea, and rebuttals of it, are found well into the eighteenth century. The notion of a degeneration from a golden age also had implications insofar as the earth as a habitable environment was concerned, for one characteristic of the golden age was the fertility of its soils, which provided ample food spontaneously and without human intervention—in sharp contrast with the toil required to glean a living from the soils of the contemporary age.

Occasionally in the writings of the Greek and Roman thinkers, statements were made regarding the effects of place and situation in forming the character of a people, ideas which were partly environmentalistic, partly cultural in their emphasis: the effect of physical isolation in producing the bravery and hardiness of rude and uncultivated peoples distant from the influences of civilization; the harmful influences of a maritime location with the ease of entry of undesirable foreign customs; the effects of government, of religion, of law, and of social institutions.

The questions which the Greeks asked concerning man and the earth were not isolated nor were they divorced from the problems of everyday life. They were asked because they were related to inquiries ranging from abstract theories regarding the origins of the earth and of man to the practical techniques of farming. Greek theories of medicine and ethnology (itself a product of

[10] The best source is Lovejoy and Boas, *Primitivism and Related Ideas in Antiquity*. The work, with pertinent excerpts and translations from the classical writings, includes a masterly analysis by Lovejoy on ideas of primitivism, social change, the golden age, etc., in antiquity. The literature dealing with the idea of cycles in antiquity is extensive; the following works will acquaint the reader with the leading advocates of these theories: Apelt, *Die Ansichten der griechischen Philosophen über den Anfang der Cultur*; Billeter, *Griechische Anschauungen über die Urspriinge der Kultur*; Gilbert, *Die meteorologischen Theorien des griechischen Altertums*; Seeliger, "Weltalter," in Roscher, ed., *Ausführliches Lexikon der griechischen und römischen Mythologie*. VI, cols. 375–430, and "Weltschöpfung," *ibid.*, cols. 430–505. Apelt deals primarily with the cyclical theory. Billeter's is an excellent short analysis with many references to the sources and to the older literature. Seeliger's articles are fundamental.

travel and exploration) found their earliest extensive exposition in the writings of the Hippocratic school of medicine and in the histories of Herodotus. The medical tradition, self-consciously shedding earlier beliefs in the divine origin of disease, sought rational explanations for the existence of both health and disease, explanations which called for consideration, among other factors, of the nature and direction of winds, the effects of swamps and damp places, the relation of sunlight and of the sun's position in the heavens to the proper siting of houses and villages, and which, by extension, encompassed investigation of the effects of "airs, waters, and places" on national character.[11] Early Greek literature—both the works which have survived and those which have been lost except for fragments—reveals a deep interest in the customs and characteristics of peoples: the Greek dramatists, like Aeschylus and Aristophanes, the histories of Herodotus, and even the Hippocratic corpus. Travel and exploration, the early attempt by Anaximander to map the inhabited world, the gathering of lore about behavior, food habits, cultural preferences (so conspicuous in Herodotus)—these were the sources of knowledge and observation from which abstract generalizations were derived.[12] The classic comparisons between the Egyptians living in a desert fertilized by the Nile, the nomadic Scythians on the bleak plains of southern Russia, and the mainland Greeks and those of Ionia in the temperate climate of summer drought and winter rain of the Mediterranean shore, lent credence to the belief that racial and cultural differences were caused by climate.[13]

The speculations of the Ionian philosophers regarding the basic composition of matter, the manner in which the present order of the cosmos had come into being, the doctrine of the four elements and the humors also prepared the way for wide-ranging speculations regarding the earth and man's relation to it. An important step was taken by Anaximander (born *ca.* 610 or 609 B.C.), who rejected the single-element theories (that fire, air, or water was the basic element), postulating instead an eternal and unchanging substance, the ἄπειρον, "the boundless," or in Kahn's words, "a huge, inexhaustible mass,

[11] On Greek medicine and the Hippocratic corpus, see Sarton, *op. cit.*, (see n. 5, above), pp. 331–383. These chapters contain exhaustive references to the classical sources and to the modern literature on the subject.

[12] On the map: Agathemerus I, i, and Strabo, Bk. I, chap. I, 11; Herodotus IV, 36. In Kirk and Raven, *PSP*, pp. 103–104 and discussion. See the chapters on traders and craftsmen, citizens and foreigners, and slaves, in Ehrenberg, *The People of Aristophanes*, pp. 113–191.

[13] On Greek ethnology, cultural theories and similar matters, see Cary, *The Geographic Background of Greek and Roman History* (some references to theories in addition to geographical reconstruction); Glover, *Herodotus* (much more attention to other writers than the title implies); Myres, "Herodotus and Anthropology," in R. R. Marett, ed., *Anthropology and the Classics*; Sikes, *The Anthropology of the Greeks* (still a wise and impressive work); Trüdinger, *Studien zur Geschichte der griechisch-römischen Ethnographie* (short but excellent and with many references to the sources).

stretching away endlessly in every direction."[14] It was not identified with any one of the commonly recognized elemental forms.[15] It had no origin, it was indestructible, its motion was eternal. "A consequence of this motion is the 'separation' of particular substances."[16] Order is characterized by a struggle of the opposites: "out of those things whence is the generation for existing things, into these again does their destruction take place, according to what must needs be; for they make amends and give reparation to one another for their offense, according to the ordinance of time."[17] The interaction of opposites—the coldness of air or mist and the heat of fire, the dryness of earth and the wetness of water—"provides the clue to the process whereby an ordered world comes into being out of the boundless unity."[18] Anaximander's philosophy is an early attempt to understand the nature of—and to account as well for—the diversity of substances of which the sensible world clearly is composed.[19] Anaximander's cosmology represents the structure of the universe as being an order, a κόσμος, a universe governed by law; it does not appear, however, to be a teleological conception.[20]

The formulation of the doctrine of the four elements by Empedocles (*ca.* 492–432 B.C.) of Acragas (Agrigentum) in Sicily was of decisive importance in many disciplines. The doctrine of the four roots (the word *element* being of later usage) is one of the most influential physical theories ever formulated.[21] With some revisions (like Aristotle's addition of aether to make a fifth), it

[14] Kahn, *Anaximander and the Origins of Greek Cosmology*, p. 233. The true sense of ἄπειρος is "what cannot be passed over or traversed from end to end," p. 232.

[15] Kahn, *op. cit.*, p. 163, comments that it is an anachronism to apply the doctrine of the four elements to Anaximander's times.

[16] Zeller, *Outlines of the History of Greek Philosophy*, p. 44.

[17] Simplicius *Phys.* 24, 13 = Diels Vorsokr. 12 A 9. See text and translation of the fragment, Kahn, p. 166; another version in Kirk and Raven, *PSP*, p. 105; cf. 117.

[18] Cornford, *Principium sapientiae*, p. 163.

[19] See Cornford, *op. cit.*, on Anaximander's system, pp. 159–186. Cornford says the older historians of philosophy thought the Ionians were interested only in finding the one substance of which all things consist. "But if we look at the systems themselves, the question they answer is different: How did a manifold and ordered world arise out of the primitive state of things?" p. 159. See also his discussion of Aristotle on Anaximander (*Phys.* 204 b 27), p. 162. It should not be thought that the elements fire, water, air, earth were discoveries of the philosophers; as Gilbert says, awareness of them was deeply imbedded in folk belief. (*Die meteorologischen Theorien des griechischen Altertums*, p. 17.) The question for the philosophers was the manner in which the existence of these supposed elements could be reconciled with theories of the composition of the universe and the order in it.

[20] On the philosophical significance of the opposites in Greek thought, see Kahn, *op. cit.* (see n. 14 above), pp. 126–133; on their origins in Greek thought, pp. 159–163.

[21] Sarton, *op. cit.* (see n. 5 above), p. 247; on his medical influence, p. 249. See also Gilbert, *op. cit.* (see n. 10 above), pp. 105–124, and on his biology, pp. 336–346. For another side of E. see Cornford, *op. cit.*, pp. 121–124. See Kirk and Raven, *PSP*, esp. Fr. 6 (where Zeus stands for fire, Hera for earth, Hades for air, Nestis for water), p. 323, and fragment 17, pp. 326–327. Empedocles calls them ῥιζώματα. See also discussion pp. 327–331.

was the basis of much of Greek science and of medieval interpretations of nature (for example, St. Francis' *Canticle of Brother Sun*); in an applied form it dominated much of the thinking in chemistry, soil theory, practical agriculture, and physical theory well into the eighteenth century.[22]

Empedocles names four elements—earth, air, water, and fire—as the basic substances upon which two other existences—love the unifying, hate the divisive—react, conceiving of these, like the elements themselves, as being corporeal.[23] Every element of which the world is composed has its counterpart in the human body. This is a hint of the theory of humors and of the doctrine of correspondences between the elements of physical nature and those of the human body, a doctrine later expanded in the enormous literature concerned with the relation of the macrocosm of the universe to the microcosm of man.

Implicit in the doctrine of the elements was the idea of opposites (powers like hot, cold, wet, dry, by which one element acted on another). In a Mediterranean climate, it would be natural to associate hot with dry and cold with moist. In fact, to Aristotle the opposites were the true elements.[24] The elements were eternal and imperishable, change occurring from their mixing and separation. Although the idea that the universe is composed of elements is a very ancient one and had been much discussed in Miletus, Empedocles' accomplishment was not that he discovered the four elements nor that he replaced single-element theories with them, but that he confined the number to four; his decisive role was "to crystallize attention on the four primary forms, and thus to replace a fuller Milesian series by the canonical tetrad."[25] The Greek theory of elements, with the ideas of opposites, may well have been based on observation: conflicts in daily life, the vigor of life, and the dynamic interplay of conflicting forces.[26]

Since the human body is composed of the same elements as are all other natural phenomena, the substances of which it is composed would be analogous to water, air, fire, and earth, although obviously they, in the form of humors, did not exist in the human body in their external forms. The humors of the

[22] Sarton, *op. cit.* (see n. 5 above), p. 247.

[23] Sambursky, *The Physical World of the Greeks*, pp. 31–33; see also Bailey, *GAE*, pp. 28–31.

[24] *Metaph.* IV, 1. On Aristotle and the elements, Kahn, *op. cit.* (see n. 14 above), p. 129; Kirk and Raven, *PSP*, pp. 330–331; Ross, *Aristotle*, pp. 105–107. Kahn's work is of great interest to the history of geography, especially physical geography. The doxography, bringing together many early theories of physical causation, is an illuminating background to Aristotle's *Meteorologica*. Among many topics discussed by Kahn are the classic doctrine of the four elements, pp. 121–126; the history of the idea of the elements, pp. 134–159, with illuminating histories of the Greek words ἀήρ and αἰθήρ, particularly in the period roughly from Homer and Hesiod to the flowering of the Milesian school; the history of the word ἄπειρον and Anaximander's concept of it. Of equal interest is Sambursky's *Physical World of the Greeks*.

[25] Kahn, *op. cit.* (see n. 14 above), p. 150; see also p. 155.

[26] See Kahn, *op. cit.* (see n. 14 above), p. 133.

body correspond to the elements of which the macrocosm is composed: air, consisting of the qualities of hot and moist, is represented in the body by the blood; fire, a mixture of hot and dry, by bile; water, cold and moist, by phlegm; and earth, a mixture of cold and dry, by black bile or melancholy. The commonest complaints of the Greeks, chest troubles and malaria, gave evidences of these humors: phlegm, blood (hemorrhaging in fevers), yellow bile, and black bile (the vomiting in remittent malaria).[27]

The origin of the doctrine of the humors is unknown; perhaps it comes from the theory of the four elements or has an independent origin in the history of Egyptian medicine.[28] Bodily counterparts of the elements are suggested by Empedocles, the humors are described in the Hippocratic writings, and Galen later restated them in more sophisticated form as the correspondences.

The theory of health as a harmonious blending and balancing of powers, held by Alcmaeon of Croton (*ca.* 500 B.C.) and the Hippocratic thinkers, made possible a theoretical development which could bridge the gulf between abstract physiological theory and the variety of human cultures.

> Alcmaeon maintains that the bond of health is the "equal balance" of the powers, moist and dry, cold and hot, bitter and sweet, and the rest, while the "supremacy" of one of them is the cause of disease; for the supremacy of either is destructive. Illness comes about directly through excess of heat or cold, indirectly through surfeit or deficiency of nourishment; and its centre is either the blood or the marrow or the brain. It sometimes arises in these centres from external causes, moisture of some sort or environment or exhaustion or hardship or similar causes. Health on the other hand is the proportionate admixture of the qualities.[29]

The doctrine of the humors is clearly stated in the Hippocratic writings. "The body of man has in itself blood, phlegm, yellow bile and black bile; these make up the nature of his body, and through these he feels pain or enjoys health. Now he enjoys the most perfect health when these elements are duly proportioned to one another in respect of compounding, power and bulk, and when they are perfectly mingled." This statement is preceded by criticisms of former theories; an appeal is made for direct observation of bodily processes, avoiding any analogy derived from the four elements in nature.[30]

[27] See Jones's discussion in the general introduction to his translation of *Hippocrates* (Loeb Classical Library), Vol. I, p. xlviii.

[28] See Allbutt, *Greek Medicine in Rome*, p. 133, who suggests that Ionia had active trade relations with Egypt, seeing in Herodotus IV, 187 evidence already of the existence of the humoral pathology. See also Jones, *ibid.*, pp. xlvi–li; and Sarton, *op. cit.* (see n. 5 above), pp. 338–339, and *idem*, "Remarks on the Theory of Temperaments," *Isis*, 34 (1943), pp. 205–208.

[29] Aetius, V. 30, 1. Kirk and Raven, *PSP*, p. 234. In this quotation, equal balance translates ἰσονομία (the same word is used in *Airs, Waters, Places*); supremacy, μοναρχία, and environment, χώρα.

[30] *Nature of Man*, IV; and the criticism of other ideas I–III; on the authorship of the treatise, p. xxvi. *Hippocrates* (Loeb Classical Library), Vol. IV. See Cornford's remarks, *op. cit.* (see n. 18 above), pp. 36–37, which have suggested my own.

Since good health consisted in a proper proportioning of the humors, some aspect of the physical environment—most often temperature—was regarded as bringing about the dominance of one humor over another; this dominance would vary with different regional climates or within the seasons of a single climate. The influence affected individuals and whole peoples, a fallacy finally exposed by Herder in the eighteenth century in the course of criticizing Montesquieu's *Spirit of Laws*.

It is far from my purpose to discuss the elements and the humors themselves; this long story, with all its confusions, belongs to physical and medical history. The important point is that the humoral doctrine also had a long and exciting life lasting well into the late eighteenth century and that it was the theoretical basis of the older theories of climatic influence. The doctrine of the four elements strongly influenced the history of soil theory, chemistry, and agriculture—hence ideas of the nature of the physical environment as a whole—and the doctrine of the humors influenced theories of psychology and physiology, making prominent the supposed changes brought about in both the mind and the body by climate as a whole, sudden temperature change, and the seasons.

Ideas concerning the relation of man to nature could not develop without a feeling for and an interpretation of nature. Since the path-breaking historical chapters of Alexander von Humboldt's *Cosmos*, an extensive literature on this subject has shown the depth and range of feeling toward nature, among both the Greeks and the Romans, in poetry, art, landscape painting, and philosophy, a strong feeling for nature being conspicuous in the writings of the Stoic philosophers, Panaetius and Posidonius.[31] One has the impression in reading Greek and Roman descriptions of nature that their writers are thinking of a domesticated nature, a pleasant commingling of nature and art: the villages on the Mediterranean shore; the beauties of cultivated fields; vines or olive groves on hillsides, sometimes close to streams, or near a forest.

The importance of nature and of natural surroundings in the history of Greek civilization has recently been emphasized by Vincent Scully. If his interpretation is accepted by students of Greek architecture, the Greek landscape will be seen in an entirely new light.

> All Greek sacred architecture explores and praises the character of a god or a group of gods in a specific place. That place is itself holy and, before the temple was built upon it, embodied the whole of the deity as a recognized natural force. With the coming of the temple, housing its image within it and itself developed as a sculptural embodiment of the god's presence and character, the meaning becomes double, both of the deity as in nature and the god as imagined by men. Therefore, the formal elements of any Greek sanctuary are, first, the specifically sacred landscape in which it is set and, second, the buildings that are placed within it.
>
> The landscape and the temples together form the architectural whole, were intended by the Greeks to do so, and must therefore be seen in relation to each other.[32]

[31] Soutar, *Nature in Greek Poetry*, *passim*, and the works of Helbig and Woermann cited in note 65 of this intro. Humboldt had mixed feelings about the Greek and Roman feeling for nature. *Cosmos*, Vol. II, pp. 19–38. See also Biese, *Die Entwicklung des Naturgefühls bei den Griechen und Römern*. Biese refers also to pioneering investigations which revised earlier opinions regarding the lack of a feeling for nature among the ancients; on Panaetius and Posidonius, see Pohlenz, *Der Hellenische Mensch*, pp. 279–299.

The single most important generalization to be made about the attitudes toward nature held by the peoples of the classical world is that these varied greatly throughout the long span of ancient history. Earlier writers tended either to minimize their existence or to content themselves with generalizations about the period as a whole, citations in support of a thesis being taken from writers who lived as much as a thousand years apart. Even Ruskin in his discussion of classical landscape thought it quite in order to confine himself to Homer, whom he regarded as being representative of the whole period. Surely Ruskin was wrong. Homer can stand as the example for the ancient world only if Theocritus, Virgil, Lucretius, and Horace never lived. One should not expect such cultural unity in the classical world with any more assurance than one would for the medieval or the modern period; the time span from the Homeric poems to Ausonius' *Mosella* is well over a millennium.

There is reason to believe, however, that the ideas of nature and the attitudes toward it that matured mainly in the Hellenistic period are different from those of the pre-Hellenistic era and indeed are important for an understanding of all subsequent ideas about the subject. For this reason, the question is discussed in the second part of this introduction.

There was, however, more than appreciation of nature; there were curiosity and inquiry manifest in an interest in mining, in the way peoples obtained their food, in canals, in agricultural techniques. The Greek and Roman treatises on agriculture, from the *Oeconomicus* of Xenophon, with his praises of Persian agriculture, to the *Natural History* of Pliny, have the strong flavor of nature study, of watching and observing nature to learn the arts of sowing, tilling, and plant breeding, while the writers of the Roman period, like Varro, Columella, and Pliny, were deeply interested in the improvement of soils, methods of plowing, irrigation, drainage, removal of stones, clearing away of thickets, winning of new lands for cultivation, manuring, and insect control.

Neither should one forget the echoes of the primordial Mediterranean world: its age-old veneration of Mother Earth, who acts literally like a mother, an earth that must be inseminated. In myth and in rite, there is a preoccupation with fertility—of man, of the earth. Agriculture, keeping cattle, herding goats

[32] Vincent Scully, *The Earth, The Temple, and the Gods. Greek Sacred Architecture*, pp. 1–2. See chapter 1, "Landscape and Sanctuary," although the entire book is devoted to exploring this theme.

and sheep—these kept men close to the tilled and untilled soil alike, reminding them of the land's fertility. From their beliefs there gradually came rational ideas of soil fertility, techniques of planting, and animal feeding.[33]

Philo the Jew, living in the rich mixtures of Hellenistic Alexandria at the beginning of the Christian Era, saw this already old conception clearly and believed in it.

> Nature has bestowed on every mother as a most essential endowment teeming breasts, thus preparing in advance food for the child that is to be born. The earth also, as we all know, is a mother, for which reason the earliest men thought fit to call her "Demeter," combining the name of "mother" with that of "earth"; for, as Plato [*Menexenus* 238 A] says, earth does not imitate woman, but woman earth. Poets quite rightly are in the habit of calling earth "All-mother," and "Fruit-bearer" and "Pandora" or "Give-all," inasmuch as she is the originating cause of existence and continuance in existence to all animals and plants alike. Fitly therefore on earth also, most ancient and most fertile of mothers, did Nature bestow, by way of breasts, streams of rivers and springs, to the end that both the plants might be watered and all animals might have abundance to drink.[34]

Finally there was the search for evidence of purpose in human life and in the universe. This sense of purpose, this feeling that the earth and human life existing on it were not without meaning and plan is particularly evident in Plato and Aristotle, although neither was the first to introduce it. The belief that there was a purpose, an end in nature and in natural processes, rested on two main arguments: the unity and harmony of the cosmos and the artisan analogy, the belief that a creator acts like an individual craftsman—a carpenter building a house—who has the end product he desires well in mind at the start; the work (ἔργον) of creation is like the art (τέχνη) of an artisan.

Although it would require a separate work to trace adequately the idea of unity in nature, we may at least hint at some of the elements which entered into this belief. If there was a unity of the cosmos, it could be assumed for its component parts, and thus for the earth, the life existent upon it, and for mankind despite the diversity of peoples.

What were thought to be the evidences of this unity and harmony? First there is regularity in the phenomena of the heavens, with the exception of comets or showers of falling stars, which could be interpreted as manifestations of divine interference with the natural order. Then, there are the phases of the moon and their periodicity, the revolution of the sun and seasonal change, the movements of the planets, the twenty-four-hour period of day and night. Possibly, as Cumont has suggested, Babylonian astronomers were more interested in the moon than in the sun. Her phases measured time before

[33] See Guthrie, *The Greeks and Their Gods*, p. 59. Eliade, *Patterns in Comparative Religion*, pp. 239–240.
[34] Philo, *On the Creation*, 133.

the duration of the year was known, and the sacred calendars which regulated religious and civil life were based on her course. Portents were seen in her eclipses, and to this divinity were ascribed many mysterious influences, including effects on plants and the health of women.[35]

The movements of the apparently eternal heavenly bodies in time led to astrology, which also fostered a sense of unity in the cosmos. Cumont and other scholars think it appeared rather late, the former dating the beginnings of astral religion with the Chaldeans in the sixth century B.C. The rising and setting of the sun brought with them not only heat and cold but light and darkness. In Mediterranean lands especially, seasonal change could be associated with certain appearances in the sky. It could be concluded that the stars had a connection with the natural phenomena on earth and with the course of human life. "Everything in sky and earth alike is incessantly changing, and it was thought that there existed a correspondence between the movements of the gods above and the alterations which occurred here below."[36] Astrology thus could become the science of cosmic environmentalism as we see it carefully worked out in the *Tetrabiblos* of Ptolemy: The stars influence all life on earth, while the natural environment on earth can account for differences within fundamental similarities. In the later development of astral religion in the Roman Empire, astrology became an all-embracing philosophy bestowing a unity and harmony on the universe.

> Astrological paganism deified the active principles which move all celestial and terrestrial bodies. Water, fire, earth, the sea, and the blast of the winds, but above all the luminous heavens of the fixed stars and planets revealed the boundless power of the God who filled all nature. But this pantheism no longer naively regarded this nature as peopled by capicious spirits and unregulated powers. Having become scientific, it conceived the gods as cosmic energies, the providential action of which is ordered in a harmonious system.[37]

It would indeed be hard to exaggerate the importance of astrology in the history of human thought, but it is equally hard to grasp its significance. It appears and reappears constantly in the books which are the sources of the ideas we are concerned with. Somehow astrology has been pushed aside by many general students of thought almost as an embarrassment or a thicket to go around rather than to penetrate. It consistently appears in a role far more exalted than its character of influencing the lives of an individual, the nativities. Its historic role, however, has been much more profound than this. It was a great unifying principle of nature, a cosmic environmentalism. Lynn Thorn-

[35] Cumont, *Astrology and Religion Among the Greeks and Romans*, p. 70. Cumont maintained that in hot countries the sun is an enemy; the moon, gently illumining the landscape, is friendly.
[36] *Ibid.*, pp. 11–12, 16.
[37] *Ibid.*, pp. 68–69.

dike has gone so far as to compare it with the Newtonian discoveries of the principles of natural law.

> The stars were not themselves affected by their movement and light, since they were eternal and incorruptible. But their motion and rays had to have some effect, and an outlet for this vast store of energy was found in our elemental world, whose changes and fluctuations and variations paralleled the shifting pattern of the eternal heavens and the varying projection of rays of light and influence thence. Furthermore, the earth was thought of as the center and bottom of the universe, and it was fitting that inferiors should be ruled and governed by superiors—the heavenly bodies.

The *Principia* of Newton eliminated the distinction between superiors and inferiors, but "during the long period of scientific development before Sir Isaac Newton promulgated the universal law of gravitation, there had been generally recognized and accepted another and different universal natural law, which his supplanted. And that universal natural law was astrological."[38]

Thorndike's interpretation illumines the thought of men such as Posidonius, Ptolemy, Albert the Great, Thomas Aquinas, and Jean Bodin, in whose thought astrology of the natural law type was a basic assumption.

These evidences were the strongest and perhaps they were the oldest. Analogies drawn from human affairs are also very ancient. The Sumerian theologians took "their cue from human society," and the divine pantheon composed of living beings, in manlike form but superhuman and immortal, superintended the universe according to established rules and regulations. The *me*'s (divine laws, rules, and regulations governing the universe) also were derived from cultural elements.[39] The history of the Greek word κόσμος suggests that observation of order in human affairs may have inspired its wider application to the organic world and then to the universe. In Homer and in other early literature the word and words derived from it "denote in general any arrangement or disposition of parts which is appropriate, well-disposed, and effective. The primary idea is of something physically neat and trim rather than morally or socially 'correct.' " The word then came to mean "finery, rich adornment." It also referred to the order of an assembled army and to the goatherds separating flocks which had mingled in pasture. The term denoted "a concrete arrangement of beauty or utility, as well as the more abstract idea of moral and social 'order.' " Its "social overtones were particularly important, and it may be that from the beginning, κόσμος was applied to the world of nature by conscious analogy with the good order of society." To the Ionian philosophers, the cosmos meant an arrangement of all things in which every natural power has its function and its limits assigned. As in any

[38] Thorndike, "The True Place of Astrology in the History of Science," *Isis*, 46 (1955), pp. 273–278. The first quotation is on p. 274, the second on p. 273.
[39] Kramer, *History Begins at Sumer*, pp. 78–79, 99–100.

good arrangement, the term implies a systematic unity in which diverse elements are combined or composed.[40] By the fifth century, the word not only meant universal order; it was also applied to the structure, form, and functioning of the human body. The unity of the microcosm, the human body with all its diversity, may well have inspired the idea of an all-embracing unity in the macrocosm.[41]

There was also the theory of the Pythagoreans, the harmonic analogy, the connection between planetary movements, which were like vibrations, and angular velocities, which were like harmonic ratios producing the music of the spheres. In this conception, the universe is pervaded (says Kahn) by geometric principles of harmony and equilibrium.[42]

The biological analogy also had great force, the unity amidst diversity being characteristic of life; in it were strong inducements toward a teleology. From Anaximander to Plato "the origin of the universe is compared to the formation and birth of a living being. This ancient pairing of cosmogony and embryology explains why the elemental bodies are referred to by Anaxagoras and Empedocles as the 'seeds' or 'roots' of all things."[43] Lucretius, as we shall see later, applied the biological analogy to the earth.

It was ideas like these, I think, that made men believe that diversity was not an illusion, nor unity imaginary.[44] The idea that there is a unity and a harmony in nature is probably the most important idea, in its effect on geographical thought, that we have received from the Greeks, even if among them there was no unanimity regarding the nature of this unity and harmony.

The idea of terrestrial unity of which human beings were a part called attention to the fitness of the earth itself as an environment for human beings and for the sustenance of all other forms of life; to the inequality of environments and the differences among them; and, by implication, to the unequal distribution of peoples and to the boundaries that might divide off a densely inhabited from a desolate region. The Greek concept of the οἰκουμένη is part of this tradition; in antiquity it had at least six different meanings, but the most common was the "inhabited world," the world known to be peopled and to be capable of supporting life. The concept of the οἰκουμένη was a concrete one, and back of it was the realization that peoples lived in different environments, sometimes similar, more often differing from one another, and

[40] Kahn, *Anaximander and the Origins of Greek Cosmology*, pp. 220–230; quotations on pp. 220, 223.
[41] "Nat. Hom." 7, *Works of Hippocrates* (Loeb Classical Library), Vol. IV. Cited by Kahn, *op. cit.*, p. 189.
[42] See Sambursky, *The Physical World of the Greeks*, pp. 53–55; Kahn, *op. cit.*, p. 206, and Spitzer, "Classical and Christian Ideas of World Harmony," *Traditio*, 2 (1944), pp. 414–421.
[43] Kahn, *op. cit.*, p. 213.
[44] See Sambursky, *op. cit.*, p. 129.

if the two are considered together—the peoples and the environments—the relationship might be a purely circumstantial one, or a theoretical one carrying a heavy burden of dogmatism and deduction.[45]

2. The Hellenistic Age and Its Characteristic Attitudes Toward Nature

It is difficult in a few paragraphs to say anything meaningful about such a long and complex period as the Hellenistic age; yet an attempt should be made to show how crucial it was to the history of ideas being considered in this work. In fact, it is more crucial than the times of Herodotus or even of Plato and Aristotle, and one can sympathize with Tarn's statement that "so far as modern civilisation is based on Greek it is primarily on Hellenism that it is based."[46] There is agreement in general but not in detail in defining the age. Droysen coined the term "Hellenistic," and the Hellenistic centuries are usually defined as the period from the death of Alexander in 323 B.C. to the founding of the Roman Empire by Augustus in 30 B.C.

Since this discussion is confined to those aspects of the age which throw light on the ideas being studied, it does not demand the precision in defining it which an independent work would demand. I will keep to the accepted definition without, however, feeling the need to apologize for including materials outside the inclusive dates. It seems obvious, for example, that the nature descriptions and bucolic poetry of Virgil, Tibullus, and Horace have much in common with those of Theocritus, Moschus, and Bion. Plutarch, who spans the first and second centuries, seems at home in the culture of the Hellenistic age (he is an important source of its history), while Varro and Columella, one an Italian, the other a Spaniard, write about plant introductions, plant and animal breeding, and reactions to rural life, which were characteristic of the Mediterranean world after Alexander's time.

The Hellenistic age is of unusual interest to a student of cultural geography. I will resist the temptation to compare it with the Renaissance or the age of discovery[47] (the similarities are superficial, the differences profound), but it is clearly one of those periods of extraordinary culture contact in the history of Western civilization in which men became aware of new and different environments and of the people living in them. Impressive as are the examples in Herodotus, they cannot campare in this regard with the compilations of Strabo, and the gulf would be greater if more works from the Hellenistic period had survived.

[45] On ancient concepts of the οἰκουμένη, See Gisinger, "Oikumene," in *PW*, Vol. 17:2, cols. 2123–2174; Kaerst, *Die antike Idee der Oikumene*; and Partsch, "Die Grenzen der Menschheit. I Teil: Die antike Oikumene," *Berichte über die Verhandlungen der Königl. Sächsisch. Ges. d. Wiss. zu Leipzig, Phil-hist. kl.*, 68 (1916), pp. 1–62.

[46] Tarn, *Hellenistic Civilization*, 3rd ed., rev. by Tarn and Griffith, p. 1.

[47] For a discussion of this point, see *HW*, Vol. 1, pp. 127–129.

One should not, however, dwell on differences alone. Comparisons were important too. Much of what the Greeks participating in Alexander's conquests saw was indeed new; even the old or familiar appeared in a new light. From long acquaintance with Egypt they knew well the contrast between the fertility of the Nile Valley and the harsh, barren Libyan desert bordering it. The plant life of Persia, known from the March of the Ten Thousand, was not too strange. The flora of Anatolia resembled that of the Mediterranean; the sun-drenched plains of Mesopotamia were reminders of African wastelands, and the Greeks had long been at home on the Pontus. The campaign in India brought out striking parallels: in the west, the Nile; in the east, the Punjab, partly in an evergreen tropical zone with its rich and abundant vegetation. In the west on journeys to the oasis of Siwa in the Libyan desert they had seen the luxurious vegetation of the great oasis of Ammon. But in the east they traversed, in an excruciating campaign, the bare sea of sands of Baluchistan. Entirely new, however, were the rich, forested, cool slopes of the Himalaya and the mangrove forests of the northwest coast of the Arabian Sea which reached from the Indus delta far into the Persian Gulf.[48] Theophrastus' *Enquiry into Plants* is a product of this increased knowledge of the world's vegetation. Who can read the fourth book, "Of the Trees and Plants Special to Particular Districts and Positions," without being aware that such knowledge was based on gatherings from the Mediterranean and Egypt to the Indus? Theophrastus writes as if he had been on the islands near the mouth of the Indus where the great mangrove trees, big as planes or the tallest poplars, stood in the water; when the tide came in, all was covered but the projecting branches of the tallest trees and to them were fastened the ships' cables, as they were to the roots at ebb tide. Theophrastus has heard that, on the east side of the island of Tylos in the Persian Gulf, the trees are so numerous that they make a regular fence when the tide goes out, and that the island also produces the wool-bearing tree (cotton) in abundance. One can agree with Bretzl that plant geography starts with Theophrastus. And Theophrastus starts with Alexander; he has before him observations of the scientific travelers on the campaign reporting new ethnographic, geographic, geologic, and botanical facts.[49]

There were not only the Himalayas and the mangroves; the Greeks of the period had a far more thorough knowledge of the Mediterranean world than had their forbears. The Near East, as Rostovtzeff has pointed out, appears in the sixteenth and seventeenth books of Strabo's *Geography* as a well-known and well-trodden land.[50] The campaigns of Alexander carried Hellenic culture to the Indus and to Chinese Turkestan. Ptolemaic monarchs by the third century B.C. had occupied Zanzibar, parts of the coasts of East Africa, and the

[48] Based on Bretzl, *Botanische Forschungen des Alexanderzuges*, pp. 1–3.

[49] Theophrastus, *Enquiry into Plants*, IV, vii, 4–7; Bretzl, *op. cit.*, pp. 4–5.

[50] *HW*, Vol. 2, p. 1040.

Sudan. That the tropics were habitable was probably known long before Eratosthenes said so, for Dalion had gone south beyond Meroë. Eratosthenes himself is an admirable exemplar of the period. In his work are the beginnings of scientific geography. He includes not only the theories of his predecessors but recent accumulations of knowledge as well. Strabo says of him that he wished to revise the map of the earth (II, 1, 2). Although he is most famous for his brilliance in devising a method for measuring the circumference of the earth with astonishing accuracy (if a certain value for the *stade* be accepted), he was also keenly interested in the contrast between the inhabited world (*οἰκουμένη*) and the terrestrial, wishing to set the former accurately within the latter. In his cultural geography, he was capable, judging by a passage on the deforestation of Cyprus, of seeing clearly the relation of governmental policy to changes in the land.[51] (See chap. 3, sec. 4.)

The discovery of the seaway to India (117–116 B.C.), the Roman conquest and colonization of Spain, North Africa, the Balkan peninsula, and Gaul enlarged immeasurably the awareness of peoples and environments. A central region of refined civilization (from Babylonia to Italy and Sicily), says Heichelheim, "was surrounded by a larger, outer zone (from the Ganges to the Atlantic) of assimilated barbarian kingdoms, Greek colonial states, and Roman outer provinces and subject allies, in which there were islands of *polis* economy or Roman municipal settlements"; from them native villagers gradually appropriated Hellenistic and Roman agricultural skills. In this Greco-Roman development, over such a large area of the earth's surface, planned colonization, economic planning, capital formation, transfer and investment, bills of exchange, and world currencies made possible "a changed appearance of the cities and even more of the countryside from Spain and Gaul to India and Turkestan."[52]

Fully as remarkable was the enlarged knowledge of primitive peoples. What wonders the members of Alexander's party saw, who sailed from the mouth of the Indus to the Shatt-al-Arab along the shores of Gedrosia and Carmania (that is, along the shares of Baluchistan to the Persian shores of the Gulf of Oman)! They and later observers as well were in the lands of the fish eaters. According to Diodorus on the authority of Agatharchides of Cnidos, the third

[51] Tarn, "The Date of Iambulus: a Note," *Classical Quarterly*, Vol. 33 (1939), pp. 192–193. On the habitability of the zones between the tropics, see Tittel, "Geminos, 1," *PW*, Vol. 7:1, col. 1034; Gisinger, "Geographie (Eratosthenes)," *PW Supp. Bd.*, 4, cols. 606–607. On E.'s measurements, see Sarton, *Hellenistic Science and Culture in the Last Three Centuries B.C.*, pp. 103–106; Bunbury, Vol. I, chap. 16; Thomson, *History of Ancient Geography*, pp. 158–166.

[52] Heichelheim, "Effects of Classical Antiquity on the Land," *MR*, pp. 168–169. This is an admirable short statement on the Hellenistic period (upon which these remarks are based), pp. 168–172. See also his article, "Monopole (hellenistisch)," *PW*, 16:1, esp. cols. 157–192. I am indebted to Professor Heichelheim for stimulating discussions and the suggestions he gave me at the Wenner-Gren symposium in 1955.

Ptolemy, Euergetes I, who reigned from 246–221 B.C., sent one of his friends, Simmias, to spy out the land, and he made an investigation of the peoples along the Red Sea and presumably to the shores of Baluchistan [III, 18, 4]. Indeed the third book of Diodorus, which contains only ethnological fragments, mostly from Agatharchides (early second century B.C.), has some of the most interesting descriptive ethnography ever written. Not the least interesting is the account [III, 2–10] in part from Agatharchides, in part from other sources, in which the confident Ethiopians are depicted as believing themselves to be the first men, their civilization to be unique and creative, and the Egyptian, in part at least, being derived from their own. The themes of the food quest, habitation, death and burial customs, and cultural isolation appear frequently in these remarkable passages. It is clear that the Greeks who studied them were much impressed by food as a criterion of culture, for most of the people are named according to the dominant item of their diet: the ichthyophagi (the fish eaters), the chelonophagi (turtle eaters), the rhizophagi (root eaters), the hyolophagi (wood eaters), the spermatophagi (the seed eaters), and so on in the descriptions of peoples bordering on the Red Sea and the Indian Ocean and the interior lands of Ethiopia.

There are absorbing antiphonal themes—the persistence of the old native cultures even with Hellenization, and the extension of Greek culture under the aegis of new rulers in sympathy with it, with the help too of the new common language, the *κοινή*, the language of the Septuagint and of the Greek New Testament. These themes are so complex that they would require a long monograph reinterpreting the ethnology of the ancient world. I must content myself with mentioning these facts, with an illustration or two, because they show that alternatives other than environmental explanations were available to account for cultural differences.[53] The pattern is not one of deep and broad Hellenization of the cultures comprising this world, but is one in which non-Greek cultures persist, possibly with some Greek penetration, while the Greek enclaves, epitomes of that culture, all bear the stamp of the typical Greek settlement. Students of the age thus have emphasized both the unity of the Hellenistic world and the respect of its rulers for the customs and religion of native peoples. The Ptolemies were "chary of modifying the immemorial customs of the temples." They "were loathe to abandon the existing traditions, to break with the deeply rooted habits and customs of the country." A votive stele of Anubis of Attic type was found at Philadelphia in the Fayûm, an eloquent illustration of Greek respect for Egyptian religion.[54]

In a letter to Zenon (employed by the finance minister Apollonius, a pow-

[53] For materials of great interest to Hellenistic cultural geography, see *HW*, Vol. 2, pp. 1053–1134, and Partsch, "Die Grenzen der Menschheit. I Teil: Die antike Oikumene," *Berichte über die Verhandl. der Königl. Sächsischen Ges. d. Wiss. zu Leipzig. Philhist. kl.*, Vol. 68 (1916), 2 Heft.

[54] *HW*, Vol. 1, p. 281, 291; the votive stele is shown in Plate 39, Vol. 1, facing p. 319.

erful Greek estate-holder in the Egyptian Fayûm) from the third century B.C., two feeders of cats, who were attached to the cult of Boubastis in the village of Sophthis, state that the king and Apollonius had ordered that persons of their profession be exempted from compulsory labor throughout the country. However, Leontiskos, the chief policeman, sent them to work at the harvest; they complied with the order, not wishing to trouble Zenon. Leontiskos then sent them off to make bricks, leaving in peace for their own ends two professional brickmakers in the same village. The cat feeders appeal to Zenon to conform to the order of the king and of the chief financial official (διοικητής).[55]

Among the decrees of Euergetes II (B.C. 118) is one defining the jurisdiction of courts; disputes involving contracts written in Greek between Greeks and Egyptians go before the Greek judges (χρηματισταί); those written in Egyptian between Greeks and Egyptians go before native courts in accordance with national laws, as do those between Egyptians.[56]

On the other hand, the study of areas of Greek colonization such as the Fayûm and of Zenon's archives gives the impression, as we shall see in Chapter 3, of innovation, of dynamic Greek enclaves in a traditional Egyptian setting. "But the Greek superstructure of Egypt, important as it was, was no more than a superstructure."[57] The Greeks in Egypt were newcomers in a land of ancient culture with long experience in living and religious feeling.

The apparent persistence and unchanging nature of life in the Near East probably also struck the Greeks because it was in such contrast with the movement and change of their own. A particularly striking passage in Diodorus throws some light on this contrast. He is discussing the antiquity of the Chaldeans of Babylon. Since they are assigned to the service of the gods, their lives are spent in study, "their greatest renown being in the field of astrology." Using various methods, they are also occupied with soothsaying and divination. Their training is quite unlike that of Greeks engaged in the same endeavors. Among the Chaldeans the study goes from father (who is relieved of all other duties to the state) to son. The parents are ungrudging teachers, their sons trusting pupils, and training from early childhood allows them to attain great skill. Among the Greeks, the student who takes up a large number of subjects without preparation turns quite late to these higher studies; he labors on them, gives them up, distracted by the need to earn a livelihood. Only a few go on to the higher studies and continue in them to make profits and they "are always trying to make innovations in connection with the most important doctrines instead of following in the path of their predecessors." The barbarians, "by sticking to the same things always, keep a firm hold on

[55] *P. Cairo Zen.*, 59451. Apollonius' concern for religious cults, both Greek and Egyptian, is frequently met up with in the Zenon papyri. No date is given.
[56] *The Tebtunis Papyri*, 5, 207–220 = Vol. 1, pp. 54–55.
[57] *HW*, Vol. 1, pp. 265–266, quotation on p. 205; cf. p. 55.

every detail," while the profit-seeking Greeks "keep founding new schools and, wrangling with each other over the most important matters of speculation, bring it about that their pupils hold conflicting views, and that their minds, vacillating throughout their lives and able to believe anything at all with firm conviction, simply wander in confusion."[58]

The early Seleucids, like the Ptolemies, were careful not to offend the religious feelings of their subjects. Although there is considerable evidence for this, one example will suffice: Uruk-Warka, the holy city of Babylonia, became once more "in the times of the Seleucids an important centre of Babylonian religion, learning, and science."[59]

These illustrations show a cultural diversity which even the simplest observer could see owed something to history and to tradition. This observation can be stated in a different way: in the Hellenistic age there was a notable broadening of the concept of the οἰκουμένη. In earlier times "the inhabited world" was predominantly a geographic concept; in the Hellenistic world it assumed also a cultural connotation.

Plutarch praises Alexander's accomplishments in educating other peoples and on occasion in changing their customs. When Alexander was civilizing Asia, "Homer was commonly read, and the children of the Persians, of the Susianians, and of the Gedrosians learned to chant the tragedies of Sophocles and Euripedes." Socrates, tried on a charge of introducing foreign deities, fell victim to Athenian informers, while "through Alexander Bactria and the Caucasus learned to revere the gods of the Greeks." Plutarch emphasizes more than modern scholars would the uncivilized and brutish in the lands Alexander conquered, and he ignores the long urban tradition of the Near East: Alexander "established more than seventy cities among savage tribes and sowed all Asia with Grecian magistracies, and thus overcame its uncivilized and brutish manner of living. Although few of us read Plato's *Laws*, yet hundreds of thousands have made use of Alexander's laws, and continue to use them." It was better to have been vanquished by Alexander than to have escaped him, for the vanquished could become civilized: "Egypt would not have its Alexandria, nor Mesopotamia its Seleuceia, nor Sogdiana its Prophthasia, nor India its Bucephalia, nor the Caucasus a Greek city hard by. . . ."[60] This broadened concept is related to the effects of Alexander's conquests, to the κοινή, to the Hellenization of this part of the world, and to Stoicism.

Plutarch paraphrases approvingly the thoughts expressed by Zeno, the founder of the Stoic philosophy, whose main principle was "that all the inhabitants of this world of ours should not live differentiated by their respective rules of justice into separate cities and communities, but that we should

[58] Diodorus, II, 29, 3–6. See also Kaerst, *Gesch. d. Hellenismus*, Vol. 2, pp. 149–150, to whom I owe the reference.
[59] *HW*, Vol. 1, p. 435.
[60] Plutarch, *On the Fortune or the Virtue of Alexander*, I 328D, 328D–E, 329A.

consider all men to be of one community and one polity, and that we should have a common life and an order common to us all, even as a herd that feeds together and shares the pasturage of a common field." According to Plutarch, Alexander sought always to bring men together, "uniting and mixing in one great loving-cup as it were, men's lives, their characters, their marriages, their very habits of life." Plutarch says he felt no envy in not having had the opportunity of seeing Alexander on the throne of Darius, but "methinks I would gladly have been a witness of that fair and holy marriage-rite, when he brought together in one golden-canopied tent an hundred Persian brides and an hundred Macedonian and Greek bridegrooms, united at a common hearth and board." Alexander desired that all men be subject to "one law of reason, and one form of government and to reveal all men as one people, and to this purpose he made himself conform." The deity recalled his soul too soon, else this unity would have come about.[61] Stoicism too, with its emphasis on universal sympathy, and on the interrelation of man and nature as part of a design, on God's care for the world, and on the universal participation of men in the divine, encouraged a cosmopolitanism in outlook already foreshadowed in the hopes of Alexander.[62] There may indeed, therefore, have been a wide diffusion of the idea of a cultural as well as a geographic οἰκουμένη, although admittedly the documentation is not thorough. Poseidippus in the third century B.C. said, "There are many cities, but they are one Hellas."[63] Plutarch's remarks about Alexander and his times, and his ideas about a man's home being the world, which are expressed in *On Exile*, communicate some of this feeling as well—in an age notable also for misery, slavery, cruelty in war.[64]

There was not only a sharper awareness of the natural and the cultural environment in the Hellenistic period, but, despite the scanty evidence for such a long time, it would seem that there was a transformation as well in esthetic, philosophical, poetic, and artistic attitudes toward nature. The feeling for nature in the ancient world—nature imagery, comparisons between natural phenomena and human emotions, appreciation of individual aspects of nature such as a flower or a breeze or of the ensemble of the individual components that manifests itself in a landscape—needs reexamination in the light of modern knowledge. It is not that the basic sources have changed much nor that we are lacking in studies; it is doubtful whether additional epigraphic and numismatic materials, paintings on vases, and the like would seriously undermine the main trends apparent in the surviving written sources and the modern monographic literature. To my knowledge, however, there is no thorough

[61] *Ibid.* The quotations are from I, 329A–B, 329C, 329D–E, and 330D.
[62] Kaerst, *Die antike Idee der Oikumene*, p. 13; Tarn, *Hellenistic Civiliz.*, pp. 79–81.
[63] Kock, ed., *Comicorum Atticorum Fragmenta*, Fr. 28, vol. 3, p. 345; quoted by Tarn, *op. cit.*, p. 86.
[64] Plutarch, *On the Fortune or the Virtue of Alexander*, I 329A–D, *On Exile*, 600D–602D. On human misery during this period see esp. *HW*, chaps. 4, 6; Tarn, *op. cit.*, chap. 3.

recent study of the subject; the most detailed ones were written in the nineteenth century, mainly by historians of literature and of art.

Bearing in mind, then, this need for reexamination of the sources and that it is beyond the scope of this work to undertake it, there are substantial reasons for believing that the roots of modern attitudes toward nature are to be found in the Hellenistic age rather than in earlier periods. Admittedly these are difficult to substantiate both for the reasons already cited and because so much has been lost. More so than in the past, the subject becomes widely diffused in different fields: poetry, belles lettres, philosophy, religion, landscape painting, agricultural writing. Tentatively one might say that realistic and vivid nature description is distinct from religious themes and certainly from the polytheism of Homer. If it is religious it is likely to be nature description in service of the design argument, as in the Stoic writings. The Epicurean philosophy—its world was also a unity whose creator was not God but nature—could inspire the vivid nature writings of Lucretius. The awareness of the oriental garden in the Hellenistic period, the tree-lined promenade, the interest in creating natural enclaves in cities, inspirations from cultures farther east, played their role in making a feeling for nature far more prominent than it had been in the earlier Greek world. No earlier period in the history of Western civilization revealed such strong, self-consciously expressed contrasts between the urban and rural as did the Hellenistic, probably a result of unique conditions of urban life of the age not only in city building but in the increased size of cities. None of these observations are new; similar ones were made in 1871 by Karl Woermann in his work on nature-feeling of the Greeks and Romans and in 1873 by Wolfgang Helbig in his researches into the early history of landscaping painting.[65] Helbig argued that before the Hellenistic age nature was an ever-present good—and never far removed. The alienation of man from nature he attributed to the rise of the great Hellenistic cities. So strong is man's dependence on nature, he further argued, that any artificial divorcement from it leads to attempts to reestablish the communion, and then to self-conscious sentiments about nature and a distinct method of artistic expression. Both Helbig and Woermann stressed the influence of the Oriental garden when it became known; the growth in the size and splendor of cities (culture becomes concentrated in them) created an awareness of the contrast between city and country, engendering a literature on nature in this and in the immediately following Roman period. Stimulating and vigorous as these works still are, their confident conclusions are only interesting possibilities, for the ideas in question probably apply only to the most self-conscious and

[65] Woermann, *Ueber den landschaftlichen Natursinn der Griechen und Römer*, pp. 65–66; see also his *Die Landschaft in der Kunst der alten Völker*, esp. pp. 201–215; Helbig, "Beiträge zur Erklärung der campanischen Wandbilder, II," *Rheinisches Museum*, N. F., Vol. 24 (1869), pp. 497–523, esp. p. 514, and his *Untersuchungen über die Campanische Wandmalerei*, chap. 23. I am greatly indebted to these stimulating works; they are especially helpful in providing copious citations to the sources.

articulate inhabitants; one may doubt that they are part of popular belief. The scanty evidence can scarcely suggest any generalization. An idyll ascribed to Theocritus, a few lines from Bion, cannot sum up a centuries-long period any more than Homer can. Regardless, however, of the problem of representativeness, I would like to quote a few passages from the familiar Hellenistic and Roman writers in order to show that significant attitudes toward nature found expression at that time. In general, these were realistic even when dealing with mythological subjects or with the activities of gods; they were more sustained than short epithets or similes; they had verisimilitude, bearing the marks of observation, of country walks, of conversations with shepherds.

The first of these works, *The Argonautica* of Apollonius Rhodius (third century B.C.) is a version of one of the oldest Greek sagas, the voyage on the "Argo" of Jason and his companions to Colchis in search of the Golden Fleece. We are concerned here not with the tale but with the incidental descriptions of nature which appear from time to time during the progress of the voyage.

(1) Running past the Tisaean headland, the son of Oeagrus, touching his lyre, "sang in rhythmical song of Artemis," and as he sang, "the fishes came darting through the deep sea, great mixed with small, and followed gambolling along the watery paths. And as when in the track of the shepherd, their master, countless sheep follow to the fold that have fed to the full of grass, and he goes before gaily piping a shepherd's strain on his shrill reed; so these fishes followed; and a chasing breeze ever bore the ship onward" [I, 570–579].

(2) Jason, with the spear given him by Atalanta, "went on his way to the city like to a bright star, which maidens, pent up in new-built chambers, behold as it rises above their homes, and through the dark air it charms their eyes with its fair red gleam and the maid rejoices, love-sick for the youth who is far away amid strangers, for whom her parents are keeping her to be his bride; like to that star the hero trod the way to the city" [I, 775–781].

(3) In the passage between Scylla and Charybdis, they have the assistance of the Nereids (who circle the ships like dolphins) and of Thetis (who guides the ship's course). "And the ship was raised aloft as the current smote her, and all around the furious wave mounting up broke over the rocks, which at one time touched the sky like towering crags, at another, down in the depths, were fixed fast at the bottom of the sea and the fierce waves poured over them in floods" [IV, 920–979; quotation is in lines 943–947].

(4) There are sensitive delineations of light, especially that of morning, which enhance the beauty and add to the total impression of the landscape. "Now . . . gleaming dawn with bright eyes beheld the lofty peaks of Pelion, and the calm headlands were . . . drenched as the sea was ruffled by the winds . . ." [I, 519–521]. "But when the sun rising from far lands lighted up the dewy hills and wakened the shepherds," they loosed their hawsers, put on board their spoil, "and with a favouring wind they steered through the eddying Bosporus" [II, 164–168].

(5) Hera and Athena visit Cypris, Eros' mother, to urge the boy to pierce Medea, daughter of Aetes, with his arrow so that she might love Jason; they act without delay and successfully. Eros then "fared forth through the fruitful orchard of the palace of Zeus," he passed through the gates of Olympus high in air, then in a downward path from heaven he turned toward earth. "And beneath him there appeared now the life-giving earth and cities of men and sacred streams of rivers, and now in turn mountain peaks and the ocean all around, as he swept through the vast expanse of air" [III, 164–166].

(6) "Now dawn returning with her beams divine scattered the gloomy night through the sky; and the island beaches laughed out and the paths over the plains far off, drenched with dew, and there was a din in the streets; the people were astir throughout the city, and far away the Colchians were astir at the bounds of the isle of Maeris" [IV, 1170–1175].

(7) There are also comparisons between a state of mind and the appearance of nature. Medea, in love with Jason and kept wakeful by her cares, dreads his fate before the strength of the bulls. "And fast did her heart throb within her breast, as a sunbeam quivers upon the walls of a house when flung up from water, which is just poured forth in a caldron or a pail may be; and hither and thither on the swift eddy does it dart and dance along; even so the maiden's heart quivered in her breast" [III, 755–759].

In this period the most familiar examples of the feeling for nature are in the writings of Theocritus, Bion, and Moschus (or from those writings conventionally attributed to them). In this bucolic poetry, especially that of Theocritus, there are charming allusions to the details of Mediterranean rural life: to goatherd's sticks, to bees, to grazing meadows. This freshness of description is also evident in urban scenes, as in *The Women at the Adonis Festival*, which is set in Alexandria. Gorgo makes a morning call on Praxinoa asking her to the festival of Adonis, which is being held at the Palace of Ptolemy II. Going with difficulty through the crowded streets of Alexandria—"How we're to get through this awful crush," says Gorgo on the way, "and how long it's going to take us, I can't imagine. Talk of an antheap!"—they arrive at the palace, where Gorgo insists that Praxinoa admire the delicate and tasteful embroideries. Praxinoa replies "Huswife Athena!" Gorgo marvels that the weavers and embroiderers are capable of such detailed work. "How realistically the things all stand and move about in it! They're living! It *is* wonderful what people can do." And the Holy Boy, Adonis, "how perfectly beautiful he looks lying on his silver couch with the down of manhood just showing on his cheeks . . . !" [Theocritus, Idyll XV, 78–86].

The wonderment has its rural parallels, set in country sounds and scenes. "Something sweet is the whisper of the pine," says Thyrsis, "that makes her music by yonder springs, and sweet no less, master Goatherd, the melody of your pipe" [Id. I, 1–3]. Intimate touches sketch the life of the herdsman. "I go a-courting of Amaryllis, and my goats they go browsing on along the hill

with Tityrus to drive them on. My well-beloved Tityrus, pray feed me my goats; pray lead them to watering, good Tityrus, and beware or the buckgoat, the yellow Libyan yonder, will be butting you" [Id. III, 1–5]. The goatherd tells Thyrsis he is no apprentice at the art of country music. "So let's come and sit yonder beneath the elm, this way, over against Priapus and the fountain-goddesses, where that shepherd's seat is and those oak-trees" [I, 19–23]. In the fifth idyll, Lacon tells Comatas, "You'll sing better sitting under the wild olive and this coppice. There's cool water falling yonder, and here's grass and a greenbed, and the locusts at their prattling" [V, 31–34]; but Comatas's tastes in natural surroundings are different: "Thither I will never come. Here I have oaks and bedstraw, and bees humming bravely at the hives, here's two springs of cool water to thy one, and birds, not locusts, a-babbling upon the tree, and, for shade, thine's not half so good; and what's more the pine overhead is casting her nuts" [V, 45–49].

In *The Harvest-Home*, the poet and his companions set out from Cos to the country to participate in the harvest festival. On the way they overtake the goatherd, Lycidas of Cydonia, "which indeed any that saw him must have known him for, seeing liker could not be. For upon his shoulders there hung, rank of new rennet, a shag-haired buck-goat's tawny fleece, across his breast a broad belt did gird an ancient shirt, and in's hand he held a crook of wild olive" [VII, 10–20]. They left the goatherd to take another road; the three of them,

> Eucritus and I and pretty little Amyntas turned in at Phrasidamus's and in deep greenbeds of fragrant reeds and fresh-cut vine-strippings laid us rejoicing down. / Many an aspen, many an elm bowed and rustled overhead, and hard by, the hallowed water welled purling forth of a cave of the Nymphs, while the brown cricket chirped busily amid the shady leafage, and the tree-frog murmured aloof in the dense thornbrake. Lark and goldfinch sang and turtle moaned, and about the spring the bees hummed and hovered to and fro. All nature smelt of the opulent summer-time, smelt of the season of fruit. Pears lay at our feet, apples on either side, rolling abundantly, and the young branches lay splayed upon the ground because of the weight of their damsons [VII, 128–146].

In Theocritus' hymn to Castor and Polydeuces, the men of Jason's ship went down the ladders, Castor and Polydeuces wandering away from the rest to see "the wild woodland of all manner of trees among the hills." Beneath a slabby rock they found a freshet ever brimming with pure clear water. The pebbles at the bottom were like silver and crystal, and there grew beside it long and tall firs, poplars, planes, and spiry cypresses, "as all fragrant flowers which abound in the meadows of outgoing spring to be loved and laboured of the shag bee" [XXII, 34–43].

Both in Bion and in Moschus there are passages implying a communion of man with nature, a sympathy within nature for the misfortunes of men, suggesting the pathetic fallacy that Ruskin found so distasteful (*Modern Painters*, Part IV, chap. 12). In Bion's *Lament for Adonis* (30–39), not only do the

Nymphs and Aphrodite mourn but so also do the elements of nature—for him and for Cypris, beautiful while Adonis lived, whose loveliness has now died with him.

> With all the hills 'tis *Woe for Cypris* and with the vales 'tis *Woe for Adonis*; the rivers weep the sorrows of Aphrodite, the wells of the mountains shed tears for Adonis; the flowerets flush red for grief, and Cythera's isle over every foothill and every glen of it sings pitifully *Woe for Cytherea, the beauteous Adonis is dead*, and Echo ever cries her back again, *The beauteous Adonis is dead.*

Similarly, in *The Lament for Bion* (usually published in the works of Moschus and probably the work of a pupil of Bion), the same sympathy comes forth from nature.

> Cry me waly upon him, you glades of the woods, and waly, sweet Dorian water; you rivers, weep I pray you for the lovely and delightful Bion. Lament you now, good orchards; gently groves, make you your moan; be your breathing clusters, ye flowers, dishevelled for grief. Pray roses, now be your redness sorrow, and yours sorrow, windflowers; speak now thy writing, dear flower-de-luce, loud let thy blossoms babble ay; the beautiful musician is dead.[66]

In a fragment attributed to Moschus, a fisherman muses about the elements and how they affect him.

> When the wind strikes gently upon a sea that is blue, this craven heart is roused within me, and my love of the land leads to the desire of the great waters. But when the deep waxes grey and loud, and the sea begins to swell and to foam and the waves run long and wild, then look I unto the shore and its trees and depart from the brine, then welcome is the land to me and pleasant the shady greenwood, where, be the wind never so high, the pine-tree sings her song.

The fisherman prefers life on shore, to sleep beneath the plane "and the sound hard by of a bubbling spring such as delights and not disturbs the rustic ear" [Fr. 4].

Among the Roman writers who were strongly influenced by Hellenistic tastes, descriptions, details of rural life, themes of communion with nature, and comparisons between city and country were also expressed, often with vigor and beauty or, as Columella did, with bitterness. One need only recall the nature imagery of Lucretius.

(1) To Venus, the life-giver (*alma Venus*), mother of Aeneas and thus of the Roman people, and the goddess of love, he says in the opening lines, "Thou, goddess, thou dost turn to flight the winds and the clouds of heaven, thou at thy coming; for thee earth, the quaint artificer (*suava daedala tellus*) puts forth her sweet-scented flowers; for thee the levels of ocean smile, and the sky, its anger past, gleams with spreading light." With spring and the coming of the strong west wind, "first the birds in high heaven herald thee, goddess,

[66] *The Lament for Bion*, 1–7. Bion's fragments 9 on the evening star and 12 on Galatea's lover combine sentiments of communion with nature with love and unrequited love.

and thine approach, their hearts thrilled with thy might. Then the tame beasts grow wild and bound over the fat pastures, and swim the racing rivers; so surely enchained by thy charm each follows thee in hot desire whither thou goest before to lead him on." For Venus alone is "pilot to the nature of things, and nothing without thine aid comes forth into the bright coasts of light, nor waxes glad or lovely. I long that thou shouldest be my helper in writing these verses. . . ."[67]

(2) The body has modest needs—only that which gives delight and takes away pain. Nature does not need banquets in palaces, nor golden images of youths about halls grasping fiery torches; nor need fretted and gilded rafters reecho to the lute; men can "lie in friendly groups on the soft grass near some stream of water under the branches of a tall tree, and at no great cost delightfully refresh their bodies, above all when the weather smiles on them, and the season of the year bestrews the green grass with flowers" [II, 20–33].

(3) "For often the fleecy flocks cropping the glad pasture on a hill creep on whither each is called and tempted by the grass bejewelled with fresh dew, and the lambs fed full gambol and butt playfully; yet all this seems blurred to us from afar, and to lie like a white mass on a green hill" [II, 317–322].

(4) "For often before the sculptured shrines of the gods a calf has fallen, slaughtered hard by the altars smoking with incense, breathing out from its breast the hot tide of blood. But the mother bereft wanders over the green glades and seeks on the ground for the footprints marked by those cloven hoofs, scanning every spot with her eyes, if only she might anywhere catch sight of her lost young, and stopping fills the leafy grove with her lament. . . ." [II, 351–360.]

A practical and utilitarian attitude toward nature so conspicuous in Virgil's *Georgics* might be counterbalanced by a lyrical and esthetic interpretation of landscape so congenial to the *Eclogues*. Here, says Tityrus, after hearing Melibaeus' complaints about the evils which have befallen him and his estate, you can rest tonight with me on the verdant leaves. There are ripe apples, soft chestnuts, and plenty of pressed cheese for us. Now the distant housetops are smoking and the longer shadows fall from the high mountains [*Ec.* I, 80 *ad fin*]. Mossy fountains, grass softer than sleep, green arbutus covering you with its thin shade, keep off the noon heat from the flock; already the burning summer approaches and now the buds are swelling on the fruitful vine [*Ec.* VII, 45–48]. Virgil expresses a desire for communion with nature, assuming, no doubt, that a deeper understanding of life comes with divorcement from the world of men. Let Pallas live, he says, in the cities she has built; the woods above all please us [*Ec.* II, 62].

[67] Lucr. I, 1–25. On the invocation to Venus and its possible inconsistency with Epicurean doctrine, see Bailey's ed. of Lucr. Vol. 2, pp. 588–591. See also Latham's very graceful trans. of this passage in the Penquin Classics ed.

Of the writers of antiquity whose writings have come down to us, however, none has shown a preference for rural life so clearly as has Horace. The joys of the country are associated with the carefree existence of a pristine race of mortals, free of anxiety in money matters, of war-making, of sailing on the angry sea, of life in the Forum and the "proud thresholds of more peaceful citizens." The rural dweller may "wed his lofty poplar-trees to well-grown vines"; look out upon "the ranging herds of lowing cattle"; prune away the useless branches and graft on fruitful ones, store his honey, shear his sheep. The modest wife and mother (in addition to her usual duties) piles high "the sacred hearth with seasoned firewood," pens "the frisking flocks in wattled fold," and milks the cows. Beloved are the scenes of homeward-coming sheep, weary oxen dragging along "the upturned ploughshare on their tired necks" [*Epode* 2]. Horace, "a lover of the country," sends greetings to Fuscus, "lover of the city." "You keep the nest; I praise the lovely country's brooks, its grove and moss-grown rocks." The contrast is really one between art and nature. Like the slave in the priest's household who was fed to satiety with so many sacrificial cakes that he ran away in order to get plain food, he prefers bread to honeyed cake. He follows Stoic teaching when he asks, if it is our duty to live agreeable to nature, what is to be preferred to the country? City advantages are unfavorably compared with country simplicities and even in the city nature is not avoided. "Why, amid your varied columns you are nursing trees, and you praise the mansion which looks out on distant fields. You may drive out Nature with a pitchfork, yet she will ever hurry back, and ere you know it, will burst through your foolish contempt in triumph." "Is the grass poorer in fragrance or beauty than Libyan mosaics?" Is the water in the leaden pipes of the city purer than the water which "dances and purls down the sloping brook?" [*Epistles*, Bk. 1, 10]. Similar themes appear in Tibullus, a contemporary of Virgil and of Horace; his poetry, as does Horace's, contrasts the urban with the rural, the life devoted to wealth, position, or warfare with that associated with humility, desire for a modest fortune, quiet, physical activity, and simplicity [I, i, 1–30]. "When the time is ripe, let me plant the tender vines and the stout orchard trees with my own deft hands, a countryman indeed" [I, i, 7]. Like Varro, he regards the country as the primordial teacher of man. "I sing the country and the country's gods" [II, i, 37]. "They were the guides when man first ceased to chase his hunger with the acorns from the oak." They taught him to build, to train bulls to be his slaves, and to use the wheel. These savage activities were replaced by the planting of fruit trees and gardens, and the "golden grapes gave up their juices to the trampling feet, and sober water was mixed with cheering wine. From the country comes our harvest, when in heaven's glowing heat the earth is yearly shorn of her shock of yellow hair" [II, i, 37–50]. The toils of country life are realistically described [II, iii]; ". . . nor think it shame to grasp the hoe

at times or chide the laggard oxen with the goad, nor a trouble to carry homewards in my arms a ewe lamb or youngling goat forgotten by its dam and left alone" [I, i].

Among the agricultural prose writers, Varro and Columella were more philosophical and stern; their belief in primordial rural strength only hardened them in their conviction that the city was an unnatural creation. To Varro the farming life was more ancient than that of the town by an astounding number of years, "and small wonder, for divine nature made the country, but man's skill the towns, and all the arts were discovered in Greece, 'tis said, within the space of a thousand years, but there was never a time when there were in the world no fields which could be cultivated."[68] Columella was perhaps the most bitter commentator in the ancient world about city and country. He lamented the abandonment "with shameful unanimity" of rural virtues and rural discipline, recalling that the Roman heroes and statesmen of old defended their country in need, returning to the plow with peace. Echoing complaints made by Varro "in the days of our grandfathers," Columella says that heads of families have quit the sickle and the plow, have crept within city walls; "we ply our hands [i.e., applaud] in the circuses and theatres rather than in the grainfields and vineyards; and we gaze in astonished admiration at the posturings of effeminate males, because they counterfeit with their womanish motions a sex which nature has denied to men. . . ." The city is a place of excess, of gluttony and drunkenness, debauching the young into premature ill health. In contrast is the life of the country, which is presumed to be closer to ways which are most natural to man because they were gifts originally given mankind by the gods.[69]

The nature imagery of Homer is vivid, but it is closely related to the activities of the gods; in the Hellenistic age, the tendency was to see the aspects of nature as they really were. The fuller knowledge of geography, the experiences of trade, travel, and exploration are manifest in such literature, for landscapes could be compared.[70] The nature poetry and landscape description of the Hellenistic age cannot be matched in any previous period in the classical world, and they may be compared with passages from Ausonius, St. Augustine, the *Romance of the Rose*, and with such writings in modern times.

The interest in nature, emboldened and intensified by inspirations from the East (such as the garden), combined with the enlargement of urban life, brought about a sharpening of the distinction, if one can trust the evidence from men like Horace, Varro, and Columella, between nature and art. This generalization admittedly is difficult to establish, but there does seem ground for belief in the emergence of a self-conscious awareness of the sharp contrast

[68] Intro. to Bk. III; cf. intro. pref. to Bk. II.

[69] Columella, *On Agriculture*, Bk. I, pref. 13–21; see also Varro, Bk. II, pref. 3, which is the passage to which C. refers.

[70] Helbig, *Untersuchungen*, pp. 204–209.

between rural and urban life.[71] Indeed, it is probably one of the periods in Western civilization in which the contrast between natural and cultural landscapes has been sharpest. This phenomenon does not first appear with the age of forest clearance in the Middle Ages, the eighteenth century ordering of nature, or the Industrial Revolution. The enlarged size of many Hellenistic cities may well have increased awareness of this distinction, the presence of gardens and tree-lined promenades suggesting a desire to create a small realm of nature within the city.

This discussion brings us to the last point about the Hellenistic period: its importance in the history of Western urbanism. Notwithstanding the deprecating remarks often made about the city, it is hard to deny the existence of a strong urban tradition, an affection for the city as a superior creation of man which existed in the Mediterranean world, and a sharing of this tradition by the peoples of the Hellenistic world. It is hard to believe that Aristotle could think the city an artificial rather than a natural creation; with his strong conviction that man is a social animal, life in the *polis* would be a natural existence for man. For the present it is enough to say that urbanization in this period was of a special nature: it took place most conspicuously in Asia Minor and for the most part in areas which had been urbanized since very ancient times, and Alexandria became one of the greatest, most interesting, and cosmopolitan cities of history.

In chapter 3 there will be more to say about the Hellenistic city because it obviously engenders environmental change.

[71] *Ibid.*, pp. 270 ff.