

vironment functions as an integrated whole in nature—that is, as an ecological system, or ecosystem.

He sees, moreover, that with his modern technology man is capable of massive environmental manipulations that were unimagined even a few years ago; and because he is told that such changes are usually irreversible and can adversely affect the lives of future generations as well as his own, he now senses the importance of seeking scientifically valid means of predicting the consequences of any alteration in the ecosystems of the world.

He begins to recognize, in short, that he must increase his scientific understanding of whole ecosystems, taking man as an essential component, if he is to establish a viable basis for the cultural and intellectual development of human society. Leading humanists, scientists, and Congressmen have for some time been keenly aware of this, and of the adverse ecological changes occurring throughout the world today, and they express mounting concern lest the quality of human life deteriorate to an unbearable degree through improper management of the environmental systems which sustain it.

We openly admit that unstable relationships between man and his total environment have formed and that under the twin pressures of an expanding economy and of excessive self-constricting population growth, competition for the finite resources of the earth almost inevitably results in their misuse.

Having accepted the fact that human society is an integral part of the earth's ecosystems and that the resources of its environments are limited, when then must we do? If the critical problem facing humanity today is the ecological one of harmoniously relating human societies to sensitive environments of finite scope and potential, we are forced to conclude that the growth of human society must henceforth be measured mainly in terms of quality rather than of quantity. The problem, in its most restricted form, lies within the domain of the natural sciences. Indeed, from one point of view, we can regard ecology as the most recent scientific outgrowth of natural history. But in its most general form the problem involves all the dynamics of man-in-society. Here it is that ecological principles are confronted with those of economics, political theory, law, and education—indeed, with all the institutions and organized structures of knowledge that deal significantly with the social reality. Clearly, the problem is too intricate and too important for the ecologist alone to solve.

Putting in perspective the present destructive influences of man on his environment, and ultimately on his own society, requires a new approach involving a synthesis of relevant knowledge from the humanities and behavioral sciences as well as from the natural sciences. Eminent contemporary intellectuals have already pointed out that we need a new science; ecologically oriented but not ecology in its traditional sense. The subject matter of the new science is human society and its total environment. If we think in terms of levels of biological integration—the molecular, cellular, organismal, population, community, and community-plus-environment levels, then we must regard the highest and most complex level as that dealing with the human dimension, where human society and its containing environment exist as a functioning whole in nature. We have seen that near the bottom of the spectrum, in molecular biology, spectacular advances in our understanding of the genetic code have resulted from