A Tale of Two Worlds: The Natural World and the Artificial World

J. T. Trevors · M. H. Saier Jr.

Published online: 29 June 2007

© Springer Science + Business Media B.V. 2007

The natural world consists of our common biosphere and its many ecosystems on Earth, and possibly such worlds elsewhere in the universe. Events in this world obey the most fundamental of laws – the laws of thermodynamics that govern the flow and interconversion of energy and mass. In the world of Biology, natural selection rules supreme. Living organisms either die prematurely, or they live and reproduce, increasing their numbers. But natural selection is harsh and cruel. We all know people who have died from diseases and experienced immense suffering. Some died or suffered merely due to circumstances, not because of their own actions. Others have suffered because of their personal carelessness and ignorance. Still others died due to the actions of other thoughtless or ill intentioned people. These facts were already recognized by the ancient Greeks who noted that our destinies were a consequence of (1) our own actions, (2) the actions of our families, and

(3) those of the Gods. The natural world is the *real* world. It encompasses but is not limited to the activities of humans. It is a challenge for us to try to understand it.

People who want to study, research and comprehend the natural world need to become educated in the sciences in the broadest and deepest sense of the word. They often devote their efforts and lives to the pursuit of relevant knowledge. Our world is incredibly complex. It is so poorly understood that we cannot expect to know everything about even a single specific aspect of it. For example, considering the species in our biosphere, we cannot estimate the number of species on Earth with a reasonable degree of confidence. Nor are we ever likely to have this capability. Knowledgeable microbiologists have suggested that the numbers of microbial species currently known represents less than 1% of those present on Earth. However, the actual value could be less than 0.1 or 0.01%.

The artificial, man-made world includes business, economics, war, crime, discrimination, religion and politics. It is a world often (but by no means always) driven by greed, consumerism and advertising. It reflects an abundance of ignorance among many world citizens. In fact, many people spend their entire lives in this artificial world without understanding even the simplest facts about the natural world. They know very little about their own genetic makeup, how their bodies function, and how our immensely complex life-supporting biosphere maintains itself. They may not even understand how their food is

J. T. Trevors (✉)
Department of Environmental Biology,
University of Guelph,
Guelph, ON N1G 2W1, Canada
e-mail: jtrevors@uoguelph.ca

M. H. Saier Jr.
Division of Biological Sciences (0116),
University of California, San Diego,
La Jolla, San Diego, CA 92093-0116, USA
e-mail: saier@biomail.ucsd.edu

grown or how potable water is provided. They live and function in this artificial world with no concept of how it was designed or how it is maintained.

At some point, the people in this man-made world become ill, their children suffer from asthma or another respiratory condition, their houses become contaminated with mold which produces allergic responses, or their pets acquire bacterial or viral infections that require health care. Then they count on the services of people who have studied and come to understand the causes of these problems. The questions we pose are: Why do so many people spend their lives ignorant of the natural world? Why are they content to do so? Why do they not strive to understand it, and our effects on it, effects, for example, on global change, biosphere pollution and devastating diseases? Why do many of us act so as to increase the immense suffering that we unwittingly inflict upon humans and others species? Why do citizens in a democracy allow policy formulation to be dictated by the greed, violence and ignorance of others?

For people to remain ignorant of nature for all or most of their lives, regardless of whether their problems were caused by mankind or resulted from natural causes, is a prelude to disaster, particularly since we all depend on the biosphere for sustenance, water, oxygen, natural resources and energy. How can we expect to receive the gifts and reap the benefits from the biosphere without taking the effort to understand and protect it? Many people actually seem to *prefer* to live an artificial existence that requires minimal effort. Laziness may be to blame, but too many individuals also blindly trust in science and technology without understanding the limitations of these disciplines. Thus, blind faith has definite drawbacks. These trusting people do not realize that science cannot solve all problems, as illustrated by the AIDS epidemic, climate change and species extinction. They do not realize that natural selection can crush our complacency in the blink of an eye with pandemics, emerging pathogens or global warming.

They cannot conceive that conditions we are creating can limit water availability, bring on agricultural crises and promote human suffering of a magnitude proportional to the size of our overall human population. And the magnitude of this population is growing at a rate never known previously on Earth.

This disconnect of human minds can only be fixed with proper education and a willingness to work towards an understanding of how our artificial and tenuous world depends on and is at the mercy of nature. Technological fixes are limited and cannot solve even a majority of our self-imposed problems. We are challenging ourselves with problems we may never be capable of solving. And without preventative solutions, sooner or later, that spells *disaster*.

People living in the artificial world have argued that natural world people do not understand economics, business and globalization. This may be true, but economists, for example, frequently think only in terms of a country's economy; they put short-term national economic goals above all else. They neglect to consider the consequences of their actions on other civilizations and the biosphere. They fail to acknowledge that our artificial world exists purely as a result of the support provided by the natural world. Their world is only a small segment of the natural world. They need to put their world into perspective.

Our biosphere is taxed beyond its limits; it is becoming polluted beyond repair, and our numbers continue to increase although they are already way beyond sustainable levels. It is the state of our environmental support system that will ultimately determine our survival capabilities. The artificial world of humans must of necessity be subservient to the laws of nature. It is more sensitive, more fragile and more destructible than the natural world. And yet, the natural world, in spite of its relative resilience, is gradually yielding its strength to the demands of mankind. It is difficult to find a basis for long-term optimism.