

Loren Eiseley: Science, Ethics, and Environmental Leadership

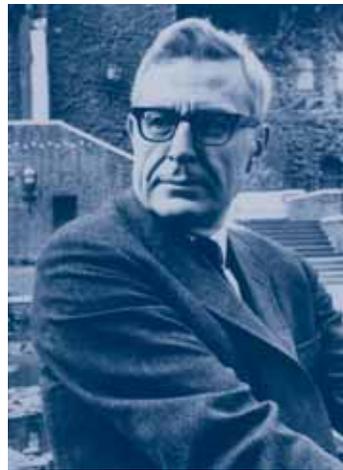
By combining scientific credibility, moral force, civility, writing talent, and a planetary awareness, Loren Eiseley pioneered 21st-century environmentalism and continues to influence it.

THE ARGENTINEAN AUTHOR Jorge Luis Borges once noted that every generation creates its own precursors—an insight useful in studying intellectual movements. Thinkers who once seemed isolated assume different hues with the passage of time, emerging as forerunners of trends not previously visible. The scientist-essayist Loren Eiseley, born 100 years ago this September, illustrates the phenomenon very well. Although he was honored in his lifetime as one of America's most original minds, after his death in 1977, few realized that he had brought together what would become distinguishing themes of the early 21st-century's ecological sensibility.

Reviewing Eiseley's career from today's vantage point, we see a lonely thinker who stood apart in his own time, yet looked ahead to vistas of the mind that environmental thought was still to approach. Eiseley was a professor of anthropology and a writer of popular essays on science and philosophy. His work is characterized by a highly individual, haunting voice that skillfully merges personal reflections with a detached, scholarly survey of the history of ideas on nature and evolution. Introspection marked him from childhood. Born in Nebraska in 1907 to a deaf, socially alienated mother, he was a high school dropout, but eventually resumed his education and entered the University of Nebraska. During the Great Depression, his studies were interrupted again when he developed tuberculosis and became an itinerant, riding the rails as a hobo.

In these wanderings, he absorbed impressions of the fragility and transitoriness of human fabrications, and of the smallness of human acts against the immense backdrop of natural history. These impressions

would find their way into his later writings. Eventually, at the age of 30, he earned a doctorate at the University of Pennsylvania. In the years that followed, he held positions at universities in Kansas, Ohio (Oberlin College), Pennsylvania (where he chaired the anthropology department), and California (Stanford's



Center for Advanced Study in the Behavioral Sciences). He also served as president of the American Institute of Human Paleontology.

Eiseley's chief interest as an anthropologist was human evolution. Though he was a highly respected scholar, it was in his extra-academic work that his gifts and insights found their fullest expression. His popular articles, published in magazines ranging from *Life* and *Holiday* to *Harper's* and *Scientific American*, won him wide readership as a literate expositor of scientific concepts. British poet W.H. Auden praised Eiseley in a 1959 issue of *The New Yorker*; the London *Times Literary Supplement* called his first book of essays, *The Immense Journey* (1957), "a work of true science which surely takes its place also as great literature"; and

he was elected to the National Institute of Arts and Letters in 1971. His volumes include the Phi Beta Kappa Science prize winner *Darwin's Century* (1958), *The Firmament of Time* (1960), *The Unexpected Universe* (1969), *The Night Country* (1971), *The Star Thrower* (1978), *Darwin and the Mysterious Mr. X: New Light on the Evolutionists* (1979), and several collections of poetry.

Studying Eiseley shows us how the greening of social concerns, including urban studies, has evolved over the past three generations. This in turn sheds useful light on the field's current policies. Although environmental considerations today are assuming growing importance for urban developers and the professions that support them, ecological thought is often viewed as a monolithic structure of research findings that has risen in linear fashion, like a tower incrementally built higher and higher on the same unchanging foundation. But the clusters of ideas that shape societies do not resemble clearly definable walls as much as elusive tides that ebb and eddy from many sources, flowing to and fro in patterns that can be difficult to discern. To fathom today's environmental consciousness of sprawl, transportation congestion, greenhouse gases, global warming, species extinction, and other problematical effects of our technologies, it helps to consider how this consciousness has arisen.

The rise of the green movement stems from two major trains of thought, both of which Eiseley's writings illuminate. One is humanistic, moral, and aesthetic; the other scientific. The humanistic element arises from the reaction of critics to the despoliation and depletion of the natural environment by rampant economic exploitation and insensi-

tively applied technology. In extreme form, it is represented by Luddism, Britain's 19th-century antitechnology movement whose members sought to curb the impacts of technology by destroying its artifacts or by otherwise forcibly impeding their application. Today, green advocates take a nonviolent approach by pointing out to companies and government agencies the irresponsibility of allowing industrial practices and technologies that destroy landscapes, harm the health of both human and non-human populations, and, overall, endanger the well-being of the planet.

Even environmentalists who regard themselves as highly sympathetic to industrial and technological development can harbor a subconscious bias against technology. Yet, this bias is inherent in the economic and social policy assumptions underlying much contemporary environmentalism. In short, environmentalists tend to assume that large-scale environmental problems can be solved by a massive scaling-back of technology. In fact, however, what is required is an enormous intensification of technology to move our present economic infrastructures in new directions and to replace environmentally destructive and efficient technologies with a new generation of equipment that will enable us to manage our society and our natural resources more wisely.

There is little sign that environmentalists are lobbying concertedly for a constructive technological initiative of this kind and sweep. Indeed, the country that might most reasonably be expected to spearhead a campaign of technological renewal, the United States, has so slipped in technological capacity that it is no longer the world's leading source of new technologies, according to a recent report by the World Economic Forum (WEF), the eminent Swiss-based foundation. The foundation now ranks the United States seventh as a worldwide producer of new technologies important enough to influence the development of

nations. In addition, *Harvard International Review* last year published a grave warning—written by the former vice chairman of the Pentagon's Joint Chiefs of Staff, Admiral William Owens—on the receding technological competitiveness of the United States.

Environmentalists who like to think of themselves as liberal hinder technological expansion by advocating technological downsizing and cottage industry economics. On the other hand, business promoters who adhere to the conservative cause of free enterprise and rugged individualism do technology development no good by promoting the dogma that if business is only left alone, technological innovation will automatically follow. However, history shows that epoch-defining transformations like the advent of nuclear technology and space travel are made not only by rugged individuals but by national determination, central government organization, and the concentration of public assets.

For Eiseley, two figures loom over an understanding of the universe and ourselves: Charles Darwin, who unlocked a Pandora's Box of questions about the origins of mankind, over which arguments continue to rage; and Francis Bacon, whose speculations about experimentation and the institutionalization of learning ushered in modern science and technology, and whom Eiseley memorialized in his book *Francis Bacon and the Modern Dilemma* (1961), revised in 1972 as *The Man Who Saw Through Time*.

Eiseley's vision of nature is filtered through his perspectives on the history of scientific knowledge, and how changing scientific concepts affect our experience of, dependence on, and responsibilities toward nature. His work pictures man as a wanderer, much like the hobo that Eiseley himself became during the Hooverville years, cut off from all moorings and a sense of destination, and finally realizing, in the light of scientific inquiry

into human origins, how the human species had begun and the mechanisms that would determine its future evolution.

The second major train of thought that gave birth to the contemporary green movement was science. Science and scientists have played a critically important role in alerting us to ecological problems.

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One the most famous of such figures, biologist Rachel Carson, drew public attention to the environmental consequences of pesticides with her best-selling book, *Silent Spring* (1962), which helped trigger the rise of the green movement and grounded it in moral, aesthetic, and humane values.

Eiseley's work is a sustained ode to the idea of scientific conscience. In a moving series of lectures delivered shortly before he died, in the wake of the first moon landing, and published as *The Invisible Pyramid* (1970), he related a conversation he had had with an engineer whose excitement about the dawn of the space age seemed to be built primarily on an urgent desire to escape the Earth with its inconveniences and the claims of its ancient ecologies—the realm that Eiseley thought of as the first world, as distinct from the second world, the realm of human artifacts. "Today," he

wrote, "man's mounting numbers and his technological power to pollute his environment reveal a single demanding necessity: the necessity for him consciously to reenter and preserve, for his own safety, the old first world from which he originally emerged. His second world, drawn from his own brain, has brought him far, but it cannot take him out of nature, nor can he leave by escaping into his second world alone." He called for an ethic that would encompass not only human society, but the entire living world.

The need for an environmental ethic of the kind Eiseley called for is today widely accepted, yet whether this has made a sufficiently profound difference to the ethical achievement of scientists in regard to environmental questions is highly debatable. Eiseley also was an extraordinarily fine communicator—a graceful public speaker who conveyed the dignity, charm, excitement, and importance of scientific discovery. Although Carson lacked Eiseley's linguistic mastery, she, too, was an effective communicator, and was employed by the U.S. government as a writer of materials to educate the public about science.

The British philosopher and mathematician Bertrand Russell, who was an exceptional public communicator as well, warned in his book *New Hopes for a Changing World* (1951), which was published more than a decade before *Silent Spring*, that the world was facing environmental catastrophe and was in the grip of forces ". . . which can only be dealt with by a degree of intelligence of which mankind hitherto has shown little evidence." Russell strongly promoted two 1948 environmental books, Fairfield Osborn's *Our Plundered Planet* and William Vogt's *Road to Survival*, urging that they be "carefully studied by all who allow themselves a facile optimism, and especially by those who believe that free enterprise and the profit motive will

solve all problems.” But Russell and Eiseley, though influential, were not joined by other articulate scientists. Academic colleagues looked at them askance for their forays into popular writing. In his memoir, *All the Strange Hours* (1975), Eiseley tells of an associate who warned him: “You keep sticking your head out and looking around. In a university that’s inadvisable . . . you’re not a fish nor a fowl, you’re a writer, and so God help you.”

For Eiseley, being a scientist meant that it was not enough to write for his colleagues, for committees, and for dispensers of grants. He relentlessly moved across disciplinary boundaries, ignoring the academic custom of writing for a professional clique. Eventually his peers, realizing the value of these endeavors, created for him a special professorship of interdisciplinary studies, the Benjamin Franklin Chair at the University of Pennsylvania. Although he always remained an outsider, Eiseley had pioneered 21st-century environmentalism and continues to be an enduring example of intellectual leadership.

Today, although the scientific element in environmental writing is entrenched, the compilers of many environmental reports continue to write for each other rather than for the public, or to impress politicians who influence institutional funding. Thus, in this year of his 100th birthday, despite the recognition his works have earned, Eiseley is still what he was during his lifetime: a lonely voice with much to teach, but with a note of grimness that becomes more pressing, more urgent, with each year that passes. **U**

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