INTEGRATING CULTURAL AND NATURAL INTERPRETATION

with Ancient Wisdom and Modern Science

NASA

All of life, including human life, is seamlessly connected.

MARTIN OGLE

In 1969, British scientist James Lovelock walked the English countryside with his neighbor, William Golding (author of *Lord of the Flies*), telling Golding about his crystallizing vision of life on Earth. After working with NASA to determine whether life was present on Mars, Lovelock had come to astounding new scientific ideas about our home planet. It appeared to him that organic and inorganic parts and processes of Earth had evolved together as a single living system, analogous, in many ways, to a living organism. Digesting these insights, Golding made a suggestion with profound implications for science and for society in general: Lovelock should name his concept "Gaia" after the ancient Greek Goddess of Earth. Golding reasoned that Western science was rediscovering what Western society had long known through myth—that Earth is alive and that human beings are a part of that life. This new synergy of science and metaphor offers powerful insights and tools for understanding and interpreting our cultural and natural heritage. It has had a deep impact on my own work as a naturalist and interpreter for over a quarter-century by providing a vision of how the story of land and the story of people are, in many ways, one and the same.

As in most other walks of life, the profession of interpretation has its necessary and helpful specialties. At a broad level, this specialization appears in the dichotomy between cultural and natural interpretation. Much of the quality and value of programs, displays and other interpretive activities stem from the solid knowledge, training, and experience in our chosen areas of expertise and from how interpretation has evolved at particular sites. My own effectiveness as an interpretive naturalist was certainly due, in part, to my background in wildlife biology and my longterm experience in natural history interpretation at a park and nature center.

As important as specialization is, however, our ability to find connections and put our stories together is equally important in our quest to illuminate the essence of the places we interpret. As defined by NAI, "Interpretation is a mission-based communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource." We can enrich and deepen this noble calling by integrating the stories of our human existence with those of the natural history of particular places and of our planet as a whole. Let us explore and illuminate the "story of Earth and its Earthlings!"

In the mid-1980s, early in my career at Potomac Overlook Regional Park (PORPNC) in Arlington, Virginia, my coworkers and I were searching for ways to enrich and expand our newly adopted theme, "Everything is Interrelated." As young professionals with backgrounds in wildlife biology, forestry, and education, we were fans of this "first law of ecology." Fortuitously, we learned about a unique opportunity to expand our theme—a grant being offered jointly by the Virginia Environmental Endowment and the Virginia Foundation for the Humanities to encourage education and research on the human and natural history of Virginia. We applied for and received the grant and developed a program called "The Human and Natural Heritage of Potomac Overlook Regional Park: An Integrated History."

This grant, and the knowledge, programs and action it spawned, were to set the tone for PORPNC for decades to come. We connected

the broad themes of geology, biology, and human history by, for instance, showing how the "fall line" (the geologic boundary between the Piedmont Plateau and Atlantic Coastal Plain) formed the basis for human settlement as well as the range of many plants and animals. As part of the interpretation of local Civil War history, we highlighted the lasting impact of wartime activities—such as almost complete deforestation around local forts and roads—upon the area's culture and ecological health. We began energy education and renovations in the late 1980s, characterizing energy as the "biggest nexus" between human systems and the environment. We delved deeply into community sustainability and bioregionalism. These concepts and activities all offered rich opportunities to integrate the human and natural stories of our land.

Although the science of ecology had been the traditional context in which scientists explored and discovered interrelationships in ecosystems, our staff believed that a larger context was needed to better assimilate human beings and our activities. Ecology had become a course within natural history fields and, thus, structurally separated from history, the humanities and even other sciences. As Aldo Leopold wrote in *A Sand County Almanac* in 1949, "An understanding of ecology does not necessarily originate in courses bearing ecological labels; it is quite as likely to be labeled geography, botany, agronomy, history or economics… whatever the label, ecological training is scarce." The PORPNC staff desired a context in which we could better incorporate these and all other disciplines in a unified whole.

During the late 1980s, I discovered the Gaia Hypothesis (later Gaia Theory) at a number of environmental education conferences. This body of knowledge became the paradigm that staff at PORPNC needed to extend our exploration and interpretation of the integrated story of land and people. The "cutting-edge" science opened the floodgates to a singularly profound understanding in integrating cultural and natural interpretation—all parts and processes of Earth (including all aspects of the human organism and human society) co-evolved as a single system. An interesting point of history often noted at PORPNC was how strict building-height limits, established over 100 years ago in nearby Washington, D.C., affected the look and feel of the entire region. An esthetic that emerged from human minds long ago to scale building height to the width of streets has had direct bearing on the character of the Washington, D.C. area—including the preservation of parks, tree cover, watersheds, and more. Within a Gaian context, this otherwise anecdotal story became one of many powerful examples of how our natural and cultural heritage co-evolved; how they are two faces of the same story!

NORTHERN VIRGINIA CIVIL WAR IMAGES COLLECTION, COLLECTION #C0150, SPECIAL COLLECTIONS AND ARCHIVES, GEORGE MASON UNIVERSITY

Civil War activities caused erosional gullies and loss of topsoil near Washington, DC. In what ways do human activities affect an area's environmental legacy?

Gaian science cannot be fully explored here, but a quick review will be helpful. Lovelock has described Gaia as "Earth seen as a single physiological system, an entity that is alive at least to the extent that, like other living organisms, its chemistry and temperature are self-regulated at a state favorable for life." Over the past four decades, Lovelock and colleagues have showed how the Gaian system moderates—even regulates (automatically, not consciously)—atmospheric gasses, ocean salinity, surface temperature, and other factors crucial to life. The maintenance of oxygen near 21 percent in the atmosphere and ocean salinity at about 35 parts per thousand over vast geological periods of time are two examples among many.

Lynn Margulis, a microbiologist at the University of Massachusetts and colleague of Lovelock, added greatly to the understanding of Gaia. Her own "endosymbiosis theory of cell evolution," quickly accepted by scientists in the 1980s, showed the physiology and community activities of microbes became symbiotically intertwined billions of years ago. Significantly, this became the foundation for all subsequent evolution, including human evolution, resulting in the single living system described, as Gaia. (For more information on Gaian science, see www.GaiaTheory.org and also consult sources for "Earth system science.")

At PORPNC, Gaian science inspired us to interpret how human processes are organically intertwined in ecological processes such as the

nitrogen and carbon cycles, symbiotic relationships between organisms and more. In our demonstration organic vegetable garden, for instance, we compared and contrasted traditional farming methods formerly used on our land with modern farming techniques, pointing out how human beings now rival all other natural processes combined in terms of nitrogen fixation due to fertilizer and fossil fuel use. Farming methods, implements, nutrient use, and the human mind that produced them are obviously important parts of the human story in many places. Simultaneously, all of these elements—especially the human mind—are dominant determinants of the environmental condition of those places and the physiology of the entire planet!

In the 1990s, Gaian science began to be called "Earth system science" and it is taught, as such, in universities across the country. This is a welcome addition to education because it integrates human elements more than previous Earth sciences. However, like ecology, Earth system science is now structurally disconnected in educational settings from other disciplines such as the humanities and sociology, thus slowing or preventing integrated understanding, research, and action. The metaphor, "Gaia," and the reason it was chosen to represent the modern, scientific idea, help us reconnect disciplines in a manner that Earth system science, *per se,* cannot.

The Zia Sun Symbol is on the flag of New Mexico.

Gaia Theory has helped bridge huge schisms between disciplines within science, but by virtue of its mythology-inspired name, it hearkens to the deep connections between the human mind and Earth's living system. Thus, I increasingly refer to a larger "Gaia paradigm" that—like Ecologist Aldo Leopold was prone to do 65 years ago—links science with other disciplines such as history and economics, sociology, art, psychology, and more. Widening our circles of knowledge allows us to better illuminate the essence of the places we interpret.

Guided by Havel's words, our staff began to incorporate symbols and stories into our interpretive programs. For instance, we regularly pointed out the common themes and motif (circle and four directions) of the Zia Sun Symbol, the Roman astronomical symbol for Earth, Buddhist mandalas and many labyrinth symbols (Celtic, Hopi, etc.). These and similar symbols from other indigenous peoples in the U.S. and elsewhere reflect their respective cultures' early awareness of cycles in nature, relationships between human beings and Earth, and other basic concepts. To unite the story of our park's solar energy and garden features, forested areas and human history, we often turned to the Zia (Pueblo) Sun Symbol that is found on the New Mexico Flag. This symbol is an example of the ancient, basic understanding that the sun is needed for all of life. From the central circle, referred to as "the circle of life," radiate four sets of four spokes representing cyclical aspects of life: the four seasons, the four times of the day, the four directions, and the four times of a person's life. Seeing the ubiquity of such symbols, the PORPNC staff created an "Indian Circle Garden" based on Gary McLain's book, *The Indian Way: Learning to Communicate With Mother Earth*. The garden was used during programs on local Indian history and a variety of ecology and natural history lessons to illustrate specific concepts and to show how the human mind both reflects and is a part of the cycles of life.

Conclusion

Although cultural and natural history interpreters must preserve our respective specialties to some extent to ensure content and quality, the greater value of our work may be in blending our respective stories. Viewing cultures food, clothes, shelter, mythologies, and stories as biological adaptations to the places on Earth where they emerged helps us envision and create new ways to flourish in the places we live. Inspiration and insights in support of these efforts comes from many places, including the "Gaia Paradigm" created by James Lovelock, a scientist, and William Golding, a writer. Their interdisciplinary understanding of the world can stimulate synergy and symbiosis between cultural and natural stories allowing us to more fully illuminate the inherent meanings of the resources we interpret.

For More Information

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