during some hundreds of millions of years of earth development.

While such an order of magnitude can produce a paralysis of thought and action, it can, we hope, also awaken in us a sense of what is happening, the scale on which things are happening, and move us to a program of reinhabiting the earth in a truly human manner. It could awaken in us an awareness of our need for all the living companions we have here on our homeland planet. To lose any of these splendid companions is to diminish our own lives.

To learn how to live graciously together would make us worthy of this unique, beautiful, blue planet that evolved in its present splendor over some billions of years, a planet that we should give over to our children with the assurance that this great community of the living will lavish upon them the care that it has bestowed so abundantly upon ourselves.

Our relationship with the earth involves something more than pragmatic use, academic understanding, or aesthetic appreciation. A truly human intimacy with the earth and with the entire natural world is needed. Our children should be properly introduced to the world in which they live, to the trees and grasses and flowers, to the birds and the insects and the various animals that roam over the land, to the entire range of natural phenomena.

Such intimacy with the universe we find with the Omaha Indians. When a child is born, the Omaha declare its newborn presence to the entire universe. First they address the sun, the moon, the stars, and every being that moves in the heavens, declaring: "Into your midst has come a new life. Consent ye, we implore! Make its path smooth, that it may reach the brow of the first hill."
Then to the atmospheric world, to the winds, clouds, rain, mist, and all that moves in the air. Then to the hills, valleys, rivers, lakes, trees, and grasses. Finally, "Ye birds, great and small, that fly through the air. Ye animals, great and small, that dwell in the forest. Ye insects that creep among the grasses and burrow in the ground, I bid ye all to hear me. Consent ye all, we implore! Make its path smooth. Then shall it travel beyond the four hills."

This is an entrancing ritual for introducing a child to the world into which the child has been born. In our own thinking we are coming back to this once more out of our new mode of understanding the universe. We now experience ourselves as the latest arrivals, after some 15 billion years of universe history and after some 4.5 billion years of earth history. Here we are, born yesterday. We need to present ourselves to the planet as the planet presents itself to us, in an evocatory rather than a dominating relationship. There is need for a great courtesy toward the earth.

This courtesy we might learn from the Iroquois. Their thanking ritual is one of the most superb ceremonies that humans have ever known. Too long to present in its entirety, it does have a refrain that is relevant here: "We return thanks"—first to our mother, the earth, which sustains us; then on to the rivers and streams, to the herbs, to the corn and beans and squashes, to bushes and trees, to the wind, to the moon and stars, to the sun, and finally to the Great Spirit who directs all things.

To experience the universe with such sensitivity and such gratitude! These are primary experiences of an awakening human consciousness. Such stupendous moments reveal a striking sense of the alluring earth.

An intimacy wonderfully expressed in the famous inscription of Chang Tsai, an eleventh-century administrative official in China. This inscription, placed on the west wall of his office, so that he would constantly have it before him, reads quite simply: "Heaven is my father and earth is my mother and even such a small creature as I finds an intimate place in its midst. That which extends throughout the universe, I regard as my body and that which directs the universe, I regard as my nature. All people are my brothers and sisters and all things are my companions."

Also, Wang Yang-ming, an early sixteenth-century Chinese writer, tells us that a truly developed person is someone who realizes that we form one body with heaven, earth, and all living things. He mentions "everything from ruler, minister, husband, wife, and friends to mountains, rivers, heavenly and earthly spirits, birds, animals, and plants; all should be truly loved in order to realize my humanity which forms a unity, and then my clear character will be completely manifested and I will really form one body with heaven, earth, and the myriad things."

India, too, has an intimacy with the natural world, as expressed in the epic poem, The Ramayana, with its touching scenes of Rama and Sita in exile, wandering in the forest with its flowering plants, fruit-bearing bushes, elephants, monkeys, deer, and brightly plumaged birds. Also in India there are the familiar animal tales of the Hitopadesa, the teaching of wisdom through playful narratives of forest life.

Everywhere intimacy, the mutual presence of the life community in all its numinous qualities. We, too, have something of this in our own transcendental and romanticist traditions that arose in Germany in the late eighteenth century and came to the English-speaking world through Coleridge in England and Emerson in America. Within this context, we developed our own American feeling for the natural world, expressed in the writings of Walt Whitman, Henry Thoreau, and John Muir. These are the archetypal personalities whose work is continued in writers Aldo Leopold, Loren Eiseley, Mary Austin, Joseph Wood Krutch, Gary Snyder, Edward Abbey, Annie Dillard, Barry Lopez, and so many others, and through a multitude of artists and musicians.

With the more recent nature writers a new understanding of the universe begins to take shape. Our scientific understanding of the universe, when recounted as story, takes on the role formerly fulfilled by the mythic stories of creation. Our naturalists are no longer
simply romantics or transcendentalists in their interpretative vision; they have absorbed scientific data into their writings. A new intimacy with the universe has begun within the context of our scientific tradition. This is the most distinctive contribution presently being made toward renewal of our presence to the earth. Science is providing some of our most powerful poetic references and metaphoric expressions. Scientists suddenly have become aware of the magic quality of the earth and of the universe entire.

The physicist Brian Swimme tells us, "The universe shivers with wonder in the depths of the human." From the tiniest fragment of matter to the grand sweep of the galactic systems, we have a new clarity through our empirical modes of knowing. We are more intimate with every particle of the universe and with the vast design of the whole. We see it and hear it and commune with it as never before. Not only in its spatial extension, but in its emergent process, we are intimate with the world about us. We experience an identity with the entire cosmic order within our own beings. This sense of an emergent universe identical with ourselves gives new meaning to the Chinese sense of forming one body with all things.

This identity is expressed by physicists in terms of the anthropic principle. In this perception the human is seen as a mode of being of the universe as well as a distinctive being in the universe. Stated somewhat differently, the human is that being in whom the universe comes to itself in a special mode of conscious reflection. That some form of intelligent reflection on itself was implicit in the universe from the beginning is now granted by many scientists. The difficulty presently is with the mechanistic fixations in the human psyche, in our emotions and sensitivities as well as in our minds. Our scientific inquiries into the natural world have produced a certain atrophy in our human responses. Even when we recognize our intimacy, our family relations with all the forms of existence about us, we cannot speak to those forms. We have forgotten the language needed for such communication. We find ourselves in an autistic situation. Emotionally, we cannot get out of our confinement, nor can we let the outer world flow into our own beings. We cannot hear the voices or speak in response.

Yet the beginning of an intimacy can be observed. The very intensity of our inquiry into the structure and functioning of the natural world reveals an enchantment with this natural world. This attraction to the primordial splendor of the universe, however betrayed by our industrial exploitation, remains an overwhelming experience. We are constantly drawn toward a reverence for the mystery and the magic of the earth and the larger universe with a power that is leading us away from our anthropocentrism to this larger context as our norm of reality and value.

Perhaps nothing is more difficult for those of us who live within the Western biblical-classical tradition. Throughout the entire course of this tradition, the autism has deepened with our mechanism, our political nationalism, and our economic industrialism. Presently a new interpretation of the Western historical process seems to be indicated. Neither the liberal progressive nor the conservative traditionalist seems to fit the situation. The only suitable interpretation of Western history seems to be the ironic interpretation. This irony is best expressed, perhaps, by the observation that our supposed progress toward an ever-improving human situation is bringing us to wasteworld instead of wonderworld, a situation that found its finest expression in Endgame by Samuel Beckett.

The intimacy expressed in the Omaha celebration of a new life born into the earth community and in the Seneca thanksgiving ritual, in the Chinese feeling of presence to the universe—these experiences that formerly were so strangely distant and unreal—now begins to fascinate us with the promise of healing our estranged situation. This estrangement, however, must be overcome within our own sense of a time-developmental, as well as in a seasonal-renewing, universe. We have a new story of the universe. Our own presence to the universe depends on our human identity with the entire cosmic process. In its human expression the universe and the entire range of earthly and heavenly phenomena celebrate
THE DREAM OF THE EARTH

In considering the larger patterns in the earth functioning, we are now able to identify its five major components: the geosphere, the hydrosphere, the atmosphere, the biosphere, and the noosphere. These are present to each other in a comprehensive manner and are all infolded in the light and radiance of the sun. In this context we have a new mode of understanding our own intimacy with the earth and also of our total dependence on these other modes of earth expression. How appropriate, then, the traditional invocation of all these powers in any human endeavor. Appropriate, also, is our continuing gratitude to these powers for bringing us into being and for sustaining us in existence.

How great a marvel that these five forces in the light of the sun should bring forth the seas and the continents, the winds and the rain, and the profusion of blossoming flowers and other living forms that inhabit the earth. A magic world! Enchanting.

But while we present these thoughts, we need to reflect especially on the mindsphere—the latest of these five powers that constitute the earth functioning. The landsphere and the other three powers that formerly functioned with such exuberant creativity seem now to have given over to the mindsphere the major share of directing the course of earth development. The earth that directed itself instinctively in its former phases seems now to be entering a phase of conscious decision through its human expression. This is the ultimate daring venture for the earth, this confiding its destiny to human decision, the bestowal upon the human community of the power of life and death over its basic life systems.

Such an event is clearly something more than historical change or cultural transformation such as we have known them in the prior course of human history, much more than the change from the Paleolithic to the Neolithic or the rise of the classical civilizations. Perhaps nothing so significant has happened since the original shaping of the earth, the rise of life itself, or the appearance of the human. Something strange indeed is happening to the entire process, and we must wonder at ourselves and what we are doing and what

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is happening to the larger destinies of the earth, even perhaps of the universe.

Such consideration brings us back to the ancient sense of Logos in the Greek world, of rita in Hinduism, or dharma in Buddhism, of tao, ch'eng, and jen in the Chinese world. These are the ancient perceptions of the ordering, or the balancing, principles of the universe, the principles governing the interaction of all those basic forces constituting the earth process. To recognize and act according to these principles was the ultimate form of human wisdom.

What is remarkable throughout the Asian world is that terms designating supremely affectionate qualities carry ultimate cosmological significance. So in the Chinese world, jen, a term translated as love, benevolence, or affection, is not only an emotional-moral term, it is also a cosmic force. This can be said also of the virtue of ch'eng, translated as sincerity or integrity. In India the term bhakti, devotional love, was a cosmological as well as a spiritual force. In Buddhist tradition the term karun, compassion, is a supreme cosmic power. Thus we find a pervasive intimacy and compassionate quality in the very structure of the universe and of the earth itself.

Our own quest for a more intimate and benevolent human presence to the earth in our times might reflect these precedents. But even more, perhaps, we might consider our intimate and compassionate presence to the earth as originating ultimately in the curvature of space, as it is presented in modern science. The entire earth community is infolded in this compassionate curve whereby the universe bends inwardly in a manner sufficiently closed to hold all things together and yet remains sufficiently open so that compassion does not confine, but fosters, the creative process.

This curve that finds its first expression in the physical bonding of the universe and later in the living process of the earth finds its most intimate expression in human thought and affection, as well as in our art, music, and dance. We can hear anew The Creation of Haydn and the Ode to Joy of Beethoven. We can read anew Leaves of Grass by Walt Whitman. We can understand the great intuitions the ancients had of the universe. We can dance anew to the rhythms of the earth.

This reenchantment with the earth as a living reality is the condition for our rescue of the earth from the impending destruction that we are imposing upon it. To carry this out effectively, we must now, in a sense, reinvent the human as species within the community of life species. Our sense of reality and of value must consciously shift from an anthropocentric to a biocentric norm of reference.

This anthropocentrism is largely consequent on our failure to think of ourselves as species. We talk about ourselves as nations. We think of ourselves as ethnic, cultural, language, or economic groups. We seldom consider ourselves as species among species. This might be referred to in biology, but it has never meant that much in real life. We must now do this deep reflection on ourselves. What earlier peoples did immediately and intuitively in establishing their human identity, we must do deliberately.

Although we are integral with the complex of life communities, we have never been willing to recognize this in law, economics, morality, education, or in other areas of human endeavor. We must do this now in the context of an emergent universe. What earlier peoples were doing, they were doing in a limited human world and in a spatial mode of consciousness. We have our experience in a dominant time-developmental mode of consciousness and with our empirical instruments of understanding. Within this context we can recognize ourselves not simply as a human community, but as genetically related to the entire community of living beings, since all species are descended from a single origin.

Perception of the earth itself as a living organism was first presented with scientific evidence by Lynn Margulis and James Lovelock. The idea itself, however, is not new. It has appeared in different cultural traditions at different historical periods. Although this belief was never central to Western thought tradition, it main-
tained itself consistently on the borders of Western consciousness as the *anima mundi* concept, "the soul of the world" concept of Plato. The influence of this concept continued through the hermetic teachings of Ficino, Pico della Mirandola, and Giordano Bruno. Later it passed on to the Cambridge Platonists of England. In Germany another expression of this vitalist tradition is found in the work of Silesius, Goethe, and Schelling, eventually reaching Bergson and all those influenced by him. Foremost among these were Vladimir Vernadsky and Teilhard de Chardin. Although these latter were primarily scientists and biologists, they were also deeply involved in the more profound philosophical currents of the West.

The scientific term *biosphere* was used in 1875 by an Austrian professor of geology, Edward Seuss (1851-1914). Later, also, he used the term in his four-volume study, which was completed in 1909—it was translated into English as *The Face of the Earth*. According to Jacques Grinevald in an unpublished paper entitled "The Forgotten Sources of the Concept of Biosphere," Teilhard read the work of Seuss in its French translation in 1920 and wrote a review of it in 1921. Already in the 1920s Vernadsky, Edard Le Roy, and Teilhard were in contact with one another in Paris. Of these, Vernadsky was the one who wrote the first extensive treatise, entitled *La Biosphère*, in 1929. This term was quickly associated with the other term, *noosphere*, which was invented by Le Roy, but popularized by Teilhard. Later it was adopted by Vernadsky, who considered human thought as a "biospherical phenomenon."

Thus our general sense of the earth as a living planet has a twofold source. One is more visionary, the other more empirical. Even when the various cultures accepted the earth as a living entity, there were significant differences in their experiences. Grand as the other cultural traditions may be, and however helpful, they are not quite what we need presently in dealing with this question. We need the insight given by our own scientific study of the earth, for the planet is severely affected. Precisely as a living planet, the earth needs attention.

Human Presence

What is needed on our part is the capacity for listening to what the earth is telling us. As a unique organism the earth is self-directed. Our sense of the earth must be sufficiently sound so that it can support the dangerous future that is calling us. It is a decisive moment. Yet we should not feel that we alone are determining the future course of events. The future shaping of the community depends on the entire earth in the unity of its organic functioning, on its geological and biological as well as its human members.