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See also: Bahá'í Faith and the United Nations; Earth Charter; Environmental Ethics; United Nations' "Earth Summits".

Epic of Evolution

The Epic of Evolution, like its synonymous terms, "cosmic evolution" and "the universe story," encompasses what Eric Chaisson has labeled "the broadest view of the biggest picture." This epic tells the sprawling story of the evolution of the cosmos, from the first moment of creation to the present state of the universe. It is the attempt to construct a unified and comprehensive narrative of systematic development throughout the history of the universe, including the origins and the diverse organization of matter, life and consciousness. The Epic of Evolution is premised on the insight that the universe as a whole is best understood as a single unfolding event, beginning with the big bang, about 14 billion years ago, and continuing through the emergence of macroscopic structures (e.g., galaxies, stars, solar systems), and microscopic structures (e.g., atoms, molecules, cells).

The Epic of Evolution has been inspired by the remarkable theoretical unification of scientific disciplines taking place during the course of the twentieth century. The most exciting theoretical advances in science in recent decades are those enabling an integration of the sciences of the large with the sciences of the small. In physics, astronomy has been theoretically coupled with particle physics to produce quantum cosmology. In biology, evolutionary theory has been coupled with molecular biology to produce a grand synthesis. Theoretical breakthroughs have continued into the social sciences, where behavioral genetics and neurobiology are being integrated with cognitive, developmental and social psychology. These advances have gradually revealed what Edward O. Wilson has called "consilience," that is, a fundamental continuity and theoretical coherence among the physical sciences, the life sciences and the behavioral sciences. Consilience among scientific disciplines now makes it possible to construct a coherent narrative of the emergent properties of matter, life and consciousness. Implicit in contemporary science is an Epic of Evolution.

The task of making the Epic of Evolution explicit is not

P Epic Ritual

The "Epic of Evolution" is the 14-billion-year narrative of cosmic, planetary, life, and cultural evolution – told in sacred ways. Not only does it bridge mainstream science and a diversity of religious traditions, if skillfully told, it makes the science story memorable and meaningful, while enriching one's religious faith or secular outlook.

In the early through mid-twentieth century, the Jesuit paleontologist Pierre Teilhard de Chardin promulgated a Christian version of the story, while Julian Huxley (biologist), Aldo Leopold (ecologist), and Loren Eiseley (anthropologist) wrote eloquent tomes from what could be called a "religious naturalist" perspective. But it was not until the 1970s and 1980s that the intellectual and literary expressions of the Epic of Evolution began to be celebrated in ceremony and ritual.

The first ritual expressions were associated with the deep ecology work practiced and promoted by Joanna Macy (California) and John Seed (Australia). Although "The Council of All Beings" is the most familiar of their productions, Macy and Seed (as well as Jean Houston in New York) created solemn processes and guided meditations that helped participants connect with their primate, reptilian, and fish heritage.

In the early 1980s, Sister Miriam Terese MacGillis of New Jersey, a student of Thomas Berry who founded Genesis Farm, created "the cosmic walk," which has become perhaps the most common way in which the Epic of Evolution is celebrated in ritual format. A rope or pathway is laid out in a spiral on the ground, with stations representing major evolutionary events, scaled (arithmetically or geometrically) to the actual time of their occurrence. Thus 14 billion years of evolution is represented along the length of the spiral. Those who take the walk begin their journey at the center of the spiral, at the birth of the known universe, and then advance toward the present as they walk the spiral outward. Scientists refer to this beginning as the Big Bang, but Epic practitioners prefer more sacred terms, such as "Great Radiance" (a term from Philemon Sturges) or "Primordial Flaring Forth" (drawing from Brian Swimme and Thomas Berry). Variations of MacGillis' initial walk are still in use, as well as completely new texts, though still using the spiral format. Many examples of such ritualizing are available on the internet, which is a good place to track the evolution of such spirituality and ritual processes. Catholic retreat centers are increasingly building permanent outdoor cosmic walks on their grounds.

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In his book, *Hidden Heart of the Cosmos*, cosmologist Brian Swimme selects several components of the Epic of Evolution and offers practices for bodily awareness of several of them, including: 1) how to experience the Earth turning rather than the sun "setting"; 2) how to experience the center of the Milky Way Galaxy. To experience Earth turning, Swimme suggests going out at sunset and envisioning oneself "standing on the back of something like a cosmic whale, one that is slowly rotating its great bulk on the surface of an unseen ocean" (1996: 27). To experience the center of our galaxy, Swimme invites us to lie on our backs under the night sky, to gaze at the constellation Sagittarius (which aligns with the center of the galaxy), and then to imagine the stars not as "up" but "down." Earth's gravity is the only thing that holds the viewer from falling "down" into the gravitational attraction at the center of the Milky Way. "You hover in space, gazing down into the vault of the stars, suspended there in your bond with Earth" (1996: 52).

Around the turn of the millennium, several people in the United States independently originated a way to experience the Epic of Evolution in a new and very personal way: through the stringing of "Great Story Beads," "Universe Story beads," or a "Cosmic Rosary." Beads are purchased (or made from clay) and strung in a loop to signify major moments of transformation ("grace moments") in the long journey of evolution. Unlike the public "Cosmic Walk" these loops or necklaces of beads enable individuals to personalize the story: choosing which events are most meaningful to them, including significant events in their own life story as beads in the loop. Instructions for creating Great Story Beads, including a suggested timeline, are available online to facilitate this process.

Seasonal celebrations are yet to develop for the Epic of Evolution. The creation of the chemical elements (carbon, oxygen, iron, gold, and so on) inside of stars that lived and died before our sun swirled into existence is beginning to be celebrated at the winter solstice. But it is such an alluring aspect of the epic that it is celebrated also throughout the year. In a sort of "Cosmic Communion" (which has been performed at Sunday services of Unitarian Universalist churches), participants are anointed with "stardust" (glitter) to signify, as Carl Sagan pointed out in the 1980s, that we are quite literally "made of stardust."

Connie Barlow and Michael Dowd (whose "The Great Story" website details the stardust ritual) have brought the Cosmic Communion into Unitarian churches and spiritual retreat centers, along with an experiential process to "celebrate your cosmic age." Barlow also emphasizes how one can see the constellation Orion in a new way: the Red Giant star Betelgeuse, in Orion's right arm, is fusing helium into carbon, oxygen, and nitrogen right now (all are elements that we breathe in and out). The blue-white star Rigel (in Orion's left leg) is fusing carbon and helium into silicon, calcium, potassium, and will one day forge silver and gold when it expires in a brilliant supernova explosion.

Other forms of Epic Ritual, still evolving, are designed to keep the memory alive, and thus honor, extinct organisms – from dinosaurs to passenger pigeons. One example is the "Coming Home to North America" ritual, designed by Connie Barlow which leads participants through a playful and reverential reenactment of the comings and goings of plants and animals in North America for the last 65 million years, since the extinction of the dinosaurs. In it, participants learn that camels and horses originated in North America fifty million years ago, were isolated on this continent until spreading into Asia and Africa just three to five million years ago, and then became extinct in their land of origin just 13,000 years ago.

In 2001, Epic enthusiasts began writing "evolutionary parables" for teaching values congruent with ecological/evolutionary awareness. In these, a major moment of transformation (such as vertebrates venturing onto land) is rendered into an engaging story and scripts for acting out. Although ancestral creatures may be depicted in dialogue, and thus anthropomorphized, the science underlying the narratives is accurate and up-to-date. Because the Epic of Evolution is "the story of the changing story," as new advances occur in the sciences, these parables, rituals, and other experiential forms will necessarily evolve.

Connie Barlow

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itself a part of science, although it is directly informed by scientific disciplines. It may rather be said that the Epic of Evolution is a product of imaginative mythmaking under the critical and watchful eye of contemporary science. As such, we must allow for a relatively wide range of variation on the central theme of cosmic evolution. Here follows an attempt to summarize the broadest view of the biggest picture.

In the beginning was singularity. Everything that would eventually become the universe was contained in an unimaginably small and dense region. About 14 billion years ago the singularity was released in an expanding burst of pure radiant energy, out of which particles of matter distilled into copious amounts of hydrogen and helium atoms. For about a billion years the universe billowed forth in an expanding cloud of cooling gas. Under the influence of gravity, irregularities in the expanding cloud fragmented into billions of galaxies, and within galaxies matter was condensed into stars. At this point in our cosmic history, physics was the only science that would have made any sense. Many stars eventually exploded in supernova events, synthesizing the nuclei of diverse atomic elements in the process. As exploding stars emptied their contents into space, chemistry would begin to make sense. Atoms of many types commenced to form molecules in interstellar space. Second- and third-generation stars were condensed out of interstellar matter, and around some of these new stars there swirled disks of particulate matter, gradually accumulating into orbiting planets. Our own solar system was formed in this process about 4.6 billion years ago. The young Earth was a semi-fluid cauldron of physical and chemical activity, allowing heavier elements to gravitate toward the center and lighter elements to be pushed toward the surface. By 3.8 billion years ago the Earth had sufficiently cooled and settled so that distinct regions of Earth (lithosphere), water (hydrosphere), and air (atmosphere) were formed. Chemical interactions at the interfaces of these regions eventually produced the biosphere, the region of the Earth's surface where living systems emerged from the prebiotic soup. The prebiotic soup was a chemical quagmire of molecular evolution, wherein molecules competed for the attention of unbound atoms. The big winners in this chemical free-for-all were large molecules having special properties, such as those for catalyzing chemical reactions (metabolism), making copies of themselves (replication), or both. Once the functions of metabolism and heredity were coordinated within the membranes of primitive cells, biology would begin to make sense. Living systems diversified aggressively. The earliest prokaryotic cells specialized in pioneering diverse metabolic pathways. Drawing on these biochemical breakthroughs, eukaryotic cells introduced a stunning diversity of shapes, sizes and movements – all variables that prepared organisms to adapt to new environmental niches. The next frontier for bioexperimentation was to diversify behavior. This eventually led to multicellularity and sexual reproduction. The evolution of behavior took a dramatic leap forward when some organisms developed cell lines (nerve cells) specialized for processing information. Increasingly complex neural systems enabled the capacity for learned behavior and conscious experience. Psychology would now begin to make sense. About a million years ago our human ancestors acquired the rudiments of language, thus introducing potentials for organizing consciousness in diverse ways. Social systems, technologies and ideologies would now develop and diverge rapidly as cultures responded to environmental challenges.

The Epic of Evolution is inherently controversial because it has astringent implications for traditional religious worldviews. Every cultural tradition is nourished by a distinctive myth, a metanarrative providing individuals with a shared orientation in nature and history. Myths engender a collective identity by informing us about our ultimate origins, our common human nature and our shared destiny. The meanings embedded in our cultural stories give us the essential resources for thinking and acting with a unity of purpose. Epic of Evolution enthusiasts have found many of the elements of a religio-cultural myth implicit in the story of cosmic evolution. Any story telling us that we are star-born, Earth-formed creatures, who are absolutely dependent on the integrity of the Earth's (now threatened) natural systems, cannot fail to arouse religious and moral sensibilities. Moreover, the Epic of Evolution engages the imagination in a way that relativizes prescientific mythic traditions. The Epic of Evolution is religiously controversial because it affronts the intellectual plausibility and the moral relevance of traditional religious worldviews.

The many ancient religious traditions of the world originated in historic circumstances very much like our own, that is, moments of deepening crisis when nothing short of a transformation in human consciousness would save the day. Human beings are presently faced with an emergency of global proportions. Every natural life-support system on the planet (air, water, soil, climate, ozone, biodiversity) is in a state of serious and rapid decline, creating a suicidal trajectory accelerated by the very social institutions we have invented to safeguard the future. Human beings presently lack the intellectual and moral resources required to achieve solidarity and cooperation on a scale commensurate with the problems we collectively face. We find ourselves spiritually maladapted to our environmental circumstances.

When faced with comparably dire prospects our ancestors did the reasonable thing: they turned to new sources of wisdom and fashioned new myths of enduring promise. It is in this spirit that Epic of Evolution enthusiasts have turned to the scientifically informed narrative of cosmic evolution as a point of departure for proselytizing a new

religious orientation that sanctifies the natural order. What they hope for is the emergence of Religious Naturalism; that is, new forms of ritual and practice that celebrate and serve the sacredness of the Earth. It remains to be seen whether religious naturalism might eventually replace traditional religious orientations, merely stimulate their radical self-transformation, or prove to be of little influence on religion and environmental practice.

Loyal Rue

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Esalen Institute

Michael Murphy and Richard Price founded the Esalen Institute in 1962 and it quickly became a Mecca for the human potential movement. The institute itself sits on 163 acres of California's Big Sur coast, located in central California, 38 miles south of Carmel. The property, noted for its natural hot springs, belonged to the Murphy family and had been a sacred place for the Esselen, one of many California tribes driven to extinction by waves of European immigrants.

Murphy had studied philosophy at Stanford University and he later spent a year at the Sri Aurobindo ashram in Pondicherry, India. Aurobindo saw the evolving universe as a manifestation of the divine. In humanity, nature becomes conscious of itself and this consciousness is the key to further evolution. Aurobindo called for a yoga practice combining Western scientific method and a personal discipline that seeks illumination from within. We are called, he said, to a greater consciousness that participates in its own transformation and the world's advancement. Aurobindo's thought, through Murphy, shapes Esalen philosophy.

Dick Price, also a Stanford graduate, met Michael Murphy at an ashram in San Francisco. Price had spent a year and a half in a mental hospital and reacted to what he felt was dehumanizing treatment. Price worked with Fritz Pearls, the founder of Gestalt therapy and a resident at Esalen. Gestalt uses imagination, dialogue and movement to more fully enter one's present emotional state. The process is an effort to break through psychological blocks and allow for natural healing and growth. Together, Price and Pearls made Gestalt an Esalen staple. In 1964, the workshops at Esalen shifted from a verbal format to become more participatory. The emphasis was on Gestalt therapy and bodywork (massage and movement exercises).

During the 1960s, the celebrities who came through Esalen represented the driving forces of the human potential movement and included Aldous Huxley, Gerald Heard, Arnold Toynbee, Linus Pauling, Gregory Bateson, Joseph Campbell, Bishop James Pike, Ansel Adams, Norman O. Brown, Virginia Satir, Rollo May, Carl Rogers, Carlos Castaneda, Michael Harner, Ashley Montagu and Paul Tillich. Abraham Maslow, the father of humanistic psychology, stumbled on Esalen by accident during its first year and gave several workshops there, and it remained a guiding force throughout his life.

As a place, Esalen holds a strong attraction. Thickets of redwood trees rise sharply on the Santa Lucia Mountains behind the institute's facilities. A rocky coastline lies at its base while fog and sunlight interact with land and sea throughout the day. Selig Morgenrath was the gardener during Esalen's early days and he brought a special touch to his work. Today, some six acres at Esalen are devoted to an organic farm that produces a considerable variety and quantity of food for the kitchen.

The El Nino storms of 1998 created landslides that destroyed the baths, damaged buildings and closed the access road for three months. The crisis became a turning point in Esalen's development. In rebuilding, the organization shifted its focus to include, not only work on individual human potential, but also efforts to become a model community in harmony with its environment. Plans are underway to conserve energy and preserve the land. The aim is eventually to give back to nature more then we take. The hot springs will be used to provide geothermal heat. Members of the institute are installing solar panels and placing buildings in better positions to utilize the sun. Wastewater treatment will use organisms rather than chemicals and recycle the water to gardens and lawns. Footpaths are replacing paved areas and native grasses are being planted.

Andy Nusbaum, Esalen's executive director, says that they want, "to utilize nature's teaching, to mimic life's underlying proportions in shaping our environment." He cites discoveries that have uncovered and copied natural structures: fuel cells that imitate plant cells, fibers as hard