In 2003, a ceramic tile project for the renovated reception area of the Royal Tyrrell Museum in Drumheller, Alberta, was made possible through funds from the Alberta provincial government; museum director Dr. Bruce Naylor expressed interest in working with local artist Lorraine Malach (Regina, Saskatchewan, 1933 – Drumheller, Alberta, 2003). In her proposal for *The Story of Life*, Malach explained that the purpose of the mural was to make the idea of “deep time” – the vastness of the geological time scale – accessible to the museum’s audience, and suggested a composition that would bring this concept into the present by using “human forms and symbols” to portray “evolution, diversification, and extinction through the ages.” The resulting ten-panel sculpted ceramic mural of unglazed fired beige clay now mounted along the museum’s reception area wall is three metres high, fifteen metres long, and about thirty centimetres deep (Fig. 1). Directed floodlights dramatically illuminate *The Story of Life*, heightening the play of shadow and light on the complex symbols and larger than life-size human forms on its high relief surface.

Given its location in a science museum, the initial assumption is that the mural should be understood within the paradigm of science: the mandate of the Royal Tyrell Museum “is to be an internationally recognized public and scientific museum dedicated to the collection, preservation, presentation, and interpretation of palaeontological history, with special reference to Alberta’s rich fossil heritage” (Fig. 2). The mural acknowledges this context in its scientific notations and references to fossils and geological strata, but its visual language and presentation do not conform to other visual representations of science within the museum: it is dramatically lit as an artwork and uses a stylistic vocabulary associated with the figurative abstraction of early twentieth-century modern art. As well, the information provided by the museum underscores the work as having been created by an individual. At the right side of the mural is a descriptive panel containing the mural’s title, a photographic portrait of the artist, and information about the context in

which the mural was made: the artist died before she completed the firings of the last two panels. The descriptive panel refers to “the final work of the renowned Canadian artist, Lorraine Malach,” as well as the museum’s decision to leave the mural unglazed as it “honours the integrity of the work and the artist.”

Below this is a plexiglass cardholder with descriptive sheets for distribution, one side of the sheet describing the mural and Malach, and the other presenting the image of a detail from the mural. The mural as an art object must therefore be considered in the context of its location. Many viewers have, however, asked the museum staff why the mural is in a museum dedicated to paleontology rather than a church. In fact, when Malach presented her maquette to the museum for approval, there was some concern among the committee members about its sacred or religious connotations; the curator of vertebrates, Dr. Paul Johnston, was well aware of Malach’s religious imagery, as he had initially encountered her work through the large sculptured ceramic angel in her yard. However, despite concern over the mural’s implicit religiosity, the entranceway renovations were designed to highlight its contemplative qualities: the tent-like textile on the ceiling of the entryway lowers the height of the space, while the stripes direct the visitor’s attention to the mural. Diffused overhead lighting filtering through the cloth creates an atmosphere of intimacy, evoking a space for reflection. Presentation and reception of the work as spiritual must thus also be taken into account.

Discursively, modern art, religion, and science are often considered separate and incommensurable, but *The Story of Life* draws upon all three as

1  | Lorraine Malach, *The Story of Life*, 2003, ceramic and sealer, 15 m × 3 m × 30 cm. Courtesy of the Royal Tyrrell Museum, Drumheller, Alberta. (Photo: Sue Sabrowski)
it inserts the metaphorical languages of modern art and religion into a space dedicated to the language of science.

*The Story of Life* is situated in the entrance hall, a transitional place, and brings a larger social/political/spiritual context into the space, focusing attention on its liminality. Liminality is understood here as recently articulated in political anthropology:

[L]iminality refers to in-between situations and conditions that are characterized by the dislocation of established structures, the reversal of hierarchies, and uncertainty regarding the continuity of tradition and future outcomes … [S]uch liminal conditions of uncertainty, fluidity, and malleability are situations to be studied in their own right where lived experience transforms human beings cognitively, emotionally, and morally, and therefore significantly contributes to the transmission of ideas and to the formation of structures.\(^6\)

This essay examines the material and visual content of a ceramic mural within the context of its location, proposing that the fusion of science, modern art, and religion found in *The Story of Life* can be understood within the context of liminality and suggesting that the importance of liminality is best explained by reading the mural within the framework of Ecotheology. Ecotheology is closely associated with the foundational principles of Matthew Fox’s Creation Spirituality and grew from environmental and
social concerns raised by theologians and ecologists. I argue that as we move from the Cenozoic to the Ecozoic era, the latter a time period postulated by ecotheologian Thomas Berry, the mural facilitates the moral transformation of human beings, a transformation crucial to addressing the pressing ecological and social challenges of today. I show that the mural dislocates established discursive structures, reverses traditional scientific and religious hierarchies, and highlights the uncertainty of future outcomes for all life if modernist modes of thinking prevail. To develop this argument, Malach's lifelong interest in cosmology and paleontology, her practice of the fine and applied arts, her attraction to Christian mysticism, and her feminism as expressed in her own writing, media reports, and interviews with her friends complement a discussion of the mural's iconography, style, and material.

As visitors enter and leave this modernist museum, they walk by the mural, first on their left and later on their right. Through this double encounter, the mural invites reflection both before and after the museum visit. Like a scientific representation of evolution, *The Story of Life* offers a conventional left to right reading on the initial encounter, beginning with the formation of the universe and the Pre-Cambrian world in the first panel and ending with the Cretaceous period in the tenth panel. On leaving the museum, the viewer retraces her steps back through time, eliciting reflection on evolutionary cause and effect. At first glance, *The Story of Life* generates thought on the relationship between human beings and the natural world, within the context of evolution. Malach has rhythmically populated her mural with abstracted humans interspersed with scientific notations that, taken together, represent the first ten geologic and evolutionary periods of the earth, spanning the Precambrian, Palaeozoic, and Mesozoic eras. The time period stretches from the Hadean era, four and a half billion years ago, when the solar system was formed, to the end of the Mesozoic era, sixty-five million years ago, when most dinosaur species became extinct, and each of the ten panels tells the story of one geologic period. While the mural's subject matter is evolution, this process is not presented in a triumphalist manner: rather, cycles of extinction and the resurgence of species are suggested.

Although Malach rarely explained her symbolism, often admonishing her audience to make their own interpretations, certain conjectures can be made based upon her conversations with Drumheller staff, her notes, sketches, and maquette, interviews with her executor, and general knowledge of the subject. The mural's scientific references are accessible only to those who have some scientific knowledge, and the more knowledge the viewer has, the more these specific references can be decoded. While the museum staff has been trained to explain some of its basic scientific content, it can be assumed that people who have visited the exhibits will be better equipped to engage with
the mural’s scientific code than those entering the museum. *The Story of Life*, then, is playful as well as thought-provoking.

In the first panel, the Pre-Cambrian, we see the expansion of the universe after the Big Bang and the formation of the solar system. This period includes a reference to the version of Newton’s Ellipse used by Richard Feynman in a lecture “The Motion of Planets Around the Sun,” and this mathematical graph-like illustration of planetary motion appears in the centre of the panel. Gravitational and electromagnetic forces as well as the nuclear forces of fusion and fission appear. Figures with eyes refer to more celestial kinds of beings and are involved with the gravitational forces of all our solar system’s planets and their moons. Atomic and subatomic particles, electron rings, and meteors travelling to the earth, evoke the requisite conditions required to initiate the formation of early molecules, such as water, and one-celled nucleated life.

The Paleozoic Era occupies the second to the seventh panels. The second panel, the Cambrian, also makes use of scientific notation, dominated by the DNA double helix, amino acid pairings that determine genetic coding, as well as schematic representations of RNA, of meiosis and mitosis, and of the development of bilateral symmetry and segmentation (Fig. 3). The three singular human forms refer to the rapid biodiversification of life. Here we are shown the formation of eyes as well as the hard-shelled creatures and burrowing life forms that participated in the Cambrian substrate revolution. At the base of the mural there is a depiction of the prolific mountain building occurring at this time depicted by the coned-hat figure and the uplifting forces acting on it. The beginnings of plants appear as the multiple-stemmed caps on the one-eyed heads. In the third panel, the Ordovician is represented by the development of the segmented worms, piles of branch corals, clams, bivalves, and nautiloids. The stacked abstracted humans could also refer to the beginning of true vertebrates. It is possible to interpret the female embracing a tube-like form as the female sea-lily who occasionally protected her larva within her “arms,” while beneath her is the crust of filter-feeding bryozoans. The Ordovician era is separated from the Silurian by a massive extinction in which almost half the earth’s life forms were wiped out, hence the strong vertical line dividing the two panels and stretching over half their length. The Silurian era, in the fourth panel, illustrates the movement of life forms out of the water and back into it through the paired swimming figures moving in opposite directions across a narrow wave. We see the collision of the proto-European and North American tectonic plates that produced mountain building and the southward movement of the continent Gondwana. The relatively hospitable conditions of the earth favoured the development of psilopsid plants that reproduced through
spores, a development alluded to in the centre of this panel. The three figures at the top are a nod to Johnston, who introduced Malach to the particularities of a snail whose straight gut twisted upwards as it became an adult. The Devonian period, shown in the fifth panel, includes the evolution of amphibians, represented by humans with flipper-like hands, and curled ammonites. The ammonites are also a tribute to Johnston, who, Malach wrote to a friend, had developed a new hypothesis on the cause of holes in their shells. The progress of vascular plants and the spread of large dense forests are depicted by figures with caps that look like abstract leaves. In this section is a representation of live birth by the armour-plated placoderm, one of the first jawed fish. It is possible the diagonal forces pushing down into this panel
refer to the two major air cells that were active in climate modulation, or they could indicate the Alamo bolide impact of hypervelocity objects suggested as the triggers of the Devonian extinction, which primarily affected life in the shallow seas. The sixth panel, the Carboniferous period, features a malevolent face in the central area, surrounded by bones representing the major marine extinction that occurred in the middle of this geologic period. Above the extinction line are prolific, diversified and vigorous corals, signified by the figures with outstretched arms, their fingers like polyps, as well as plants and forests. The active mountain-building processes resulting from tectonic plate movement and characteristic of this time are represented by pushing hands in the upper right. Below the extinction line are three four-winged insects that denote the appearance of giant dragonflies, the first flying creatures to inhabit the coal swamps that formed amid the dying rainforests. In the seventh panel, the Permian period at the end of the Palaeozoic era, insects from the Carboniferous continue to evolve. The major overlapping forms within this panel signal the formation of the massive supercontinent Pangaea, while objects of extraterrestrial origin impact the earth. Amid this turmoil, ammonites continue to thrive. The panel is completed by an arc signalling the mass extinction that wiped out about ninety-five per cent of living organisms, while the few that survived are shown in the upper corner, moving into the Mesozoic era.

On the other side of the mass extinction, the Mesozoic Era begins with the Triassic period, shown in the eighth panel, and a resurgence of life. Depicted here is the diversification of land life, seen especially in the development of reptiles, including the pterosaur, a turtle carapace, true eggs associated with dinosaurs, and hollow dinosaur bones. Here we also find the first mammal, curled up womb-like at the base of the section. A strong vertical break between the Triassic and Jurassic periods is indicative of yet another extinction event. In the centre of the ninth panel, the Jurassic, we are possibly looking at the separation of the supercontinent into Laurasia and Gondwana. This period is also represented by the appearance of a true bird with feathers and a variety of dinosaurs of all sizes, as well as the increased prominence of the mammalian family, seen in the small child at the base of the section. Perhaps the three figures in the lower part of the panel stand for the first appearance of the plesiosaurs, with their prominent flipper paddles for swimming. Rain forests also proliferated at this time. The tenth and last panel, the Cretaceous period, depicts the conclusion of the Mesozoic era before the onset of the Palaeocene era (Fig. 4). This panel is divided into two sections, the lower one bounded by an arc that cradles the non-flying dinosaurs, flowers, and the ammonite. The arc refers to the mass extinction event at the end of the Mesozoic. This killed off the ammonites, represented here through the depiction of an ammonite shell, as well as early flowering
plants and the rapidly diversifying dinosaur population, such as the duck-billed dinosaur that communicated by trumpeting through its horn, which appears here as an abbreviated pan flute. As the birds appear above the extinction arc, we are made aware of their evolution from dinosaurs in the Jurassic to true birds in the Cretaceous by the strong diagonal lines formed from arms that stretch between the two periods. The small and slowly diversifying mammals, represented as foetuses in wombs, also survive the mass extinction, the cause of which is alluded to by a large meteor in the lower right. Perhaps the hooded heads near the base refer to the snails and other detritus feeders that proliferated during this time. Mammals, still presented as curled in the foetal position, also survived. The implication that evolution, with its processes of extinction and resurgence, continues today is achieved through the metaphorical bird and mammal figures pushing beyond the upper vertical edge of this last panel.

Malach had always had a keen interest in science, especially cosmology, astronomy, physics, geology, and paleontology. As a young student at the Philadelphia Academy of Art she had delved into the philosophical implications of the relationship between her Catholic faith and Einstein’s
Surette  The Story of Life: A Ceramic Mural by Lorraine Malach

Theory of Relativity, writing about it to her mother. When she returned to her home in Regina, she spent evenings stargazing on the prairies through binoculars or a telescope, and followed discoveries and discussions on cosmology and quantum physics in science magazines and journals, such as *Sky and Telescope* and *Scientific American*. She relied upon the *Canadian Journal of Earth Sciences* for up-to-date information on geology and paleontology. Her many books included the writings of Albert Einstein, Teilhard de Chardin, Carl Sagan, Alan H. Guth, Stuart Kauffman, Richard Feynman, and Stephen Hawking, all writers who address the interface between science and religion, with an explicit emphasis on cosmology. Malach was firmly convinced that science was a legitimate way to discover and know God, and evolution was part of this discovery. When she moved to Drumheller from Regina, her easy access to the Royal Tyrrell Museum allowed her to intensify her inquiry into paleontology, and she devoured books and articles on the subject. She connected with Drumheller’s scientific community, hiking through the Badlands, visiting the museum, and attending the winter weekly Speaker Series to hear guest lecturers share new research. The Drumheller scientists recognized Malach for her ability to engage with “challenging themes and ideas” during Friday evenings spent socializing with members of the scientific, artistic, and musical communities where freewheeling conversations abounded.

While the scientific content of the mural can be decoded using information acquired during a visit to the museum, the repetition of the human figures suggests metaphorical content as well, leading the viewer to carefully consider the relationship between humans and the evolutionary process. Within science it is known that one type of scientific representation alone does not give a complete “picture” and that combinations lead to a more extensive understanding of the subject. *The Story of Life* can be seen as another of the museum’s representations of the story of evolution, adding subjectivity to the objectivity of a science museum, suggesting we become aware of the interplay between different kinds of experiences. Through its integration of human imagery, so different from the presentations in the museum, the mural underscores how we, as individuals and as a part of an ecological community, have been shaped by and continue to shape the world. According to Johnston, Malach had originally considered using animal forms to tell the story of life, but quickly “realized the museum already does this and does this well.” She wanted her work to avoid competition with the museum’s well-established and effective illustration in its interpretive displays, as well as the scientific graphing used to present evolutionary data. In part, Malach may have chosen to use abstracted humans as metaphor because she was experienced and adept with this representational style, having used it previously in drawings and several large ceramic murals. Most of these
murals were made as commissions for the Catholic Church, and Malach, as a committed Catholic who attended mass regularly and engaged with the social and philosophical debates within the Church, was an ideal artist to execute sacred art for Catholic spaces. Her focus on the abstracted human body was consistent with mid-twentieth century Catholic directives regarding modern sacred art practices, which privileged the human body, considered “a central fact in Christianity.”

Malach’s various ceramic commissions for the Church spanned forty years, including a plate for the Vatican, two Franciscan murals, a mural for Regina’s Holy Rosary Cathedral, several murals for Catholic churches in Saskatchewan and retreat centres in Alberta and Saskatchewan, and murals for Catholic schools in Alberta.

Malach was particularly interested in feminist issues and liberation theology within the Catholic reform movement and engaged in discussions about the doctrines of Vatican II, supporting a renewal of the Church and expressing a commitment to the ideals of the universal church and ecumenism. Attending an interfaith lecture series in Regina, she rejoiced in the advancement of the role of women within the different Christian churches, and distanced herself from the Catholic evangelism of her youth.

A self-described Franciscan, she had life-long friends within the Order, and, fusing Franciscan ideals with her commitment to art, she lived her life simply, growing food, bicycling everywhere, scavenging firewood, and possessing a bare minimum of furniture. Her public declarations as a “Franciscan” were made shortly after her completion of two monumental Franciscan murals: one at the Edmonton Friary in 1977 and another at Port Alberni’s Holy Family Notre Dame parish church in 1981. This was an active period in terms of the establishment of the ecology movement and in the autumn of 1979, Pope John Paul II declared Saint Francis of Assisi the patron saint of ecology.

Considered an early environmentalist by her friends, Malach had read Rachel Carson’s *Silent Spring*, a book that has been credited with launching the environmentalist movement in 1962 through its reporting on the use of harmful pesticides, and Malach wrote in dismay about her encounters with clearcutting while on Vancouver Island to install her Port Alberni Franciscan mural.

Malach’s letters of the 1980s and 1990s consistently reflect her distress with material waste, corporate excess, over-consumption, social inequalities, environmental pollution, and the political and corporate policies that encouraged such states. During this period she was increasingly disturbed by the role of religious institutions in perpetuating these problems and the challenges a responsible individual faces in addressing them. Malach was also searching for a clear way to express these pressing social, environmental, and theological concerns through her art.

In the early 1990s, Malach wrote she had had a “life changing” experience upon viewing the IMAX movie *The Blue Planet*. She wrote: “It didn’t
change attitudes but rather confirmed and cemented those I’ve had now for some time – attitudes formed through information, intuition and spiritual sensitivity. It reinforces the feeling of place – or sense of place – which I’ve had for some time now – but particularly this past year … that home is the planet (not Regina) itself – and that this is where we are.”

Using images taken by astronauts coupled with film and photographic footage from sea and land locations, *The Blue Planet* emphasizes the interconnectedness of atmospheric and geological forces and the tissue of life, concluding with showing ways in which current human activity menaces this fragile ecosystem. The movie’s final plea is that all the peoples of the world, despite ongoing conflicts, realize they share a fragile common home. Shortly after seeing this movie, Malach put this powerful experience into a theological context through contact with the teachings of radical Catholic theologians Hans Kung, Thomas Berry, and Matthew Fox. They appreciated and incorporated the ideas of Teilhard de Chardin, Meister Eckhart, and Thomas of Aquinas, and were seeking a new expression of Catholicism for the late twentieth century, one that would resonate with people who were actively engaged in the great social and scientific concerns of the present.

In 1992, as a regular reader of the *Prairie Messenger*, a weekly Catholic magazine committed to social justice, Malach had encountered the writings of Fox, the leading exponent of Creation Spirituality. Fox rejects a Christianity that places humankind and its redemption at the centre of dogma and instead proposes Creation Spirituality, which is based on the creative energy of the universe as the starting point of spirituality. In this belief system, science and religion work together to produce a new wisdom that values creativity, feminism, and the oppressed peoples of the world, enabling us, as humans, to adequately respond to the major ecological and social justice crises facing us.

Fox encourages a return to medieval mysticism such as that expressed by Hildegard of Bingen, Saint Francis of Assisi, and Meister Eckhart and revisited in the nineteenth century by writers such as Henry David Thoreau, but he also connects with those in the contemporary scientific community who are interested in spiritual renewal. The foundations of Fox’s theology were familiar to Malach, who had read Saint Thomas Aquinas’s *Summa contra Gentiles*, *Books I and II* while travelling in Europe in 1955. It contains the message, “[t]he order of the universe is the ultimate and noblest perfection in things.”

As a follower of Saint Francis and someone who had enjoyed de Chardin and Thoreau, she was receptive to Berry’s thought, as he, too, was inspired by Chardin. Berry, a cultural historian, member of the Passionists, Aquinas scholar, and student of various religions, is, with mathematical cosmologist Brian Swimme, the author of *The Universe Story*. Berry states his basic proposition as:
The universe, in the phenomenal order, is the only self-referent mode of being and that all other modes of phenomenal being are universe-referent, that all beings in the universe constitute a single community of existence ... Since all living beings, including humans, emerge out of this single community there must have been a bio-spiritual component of the universe from the beginning. Indeed we must say that the universe is a communion of subjects rather than a collection of objects.32

Both Berry and Fox critique the modern era’s dualistic, oppositional, and hierarchal nature, rooted in patriarchy, and express the need for a “comprehensive story of the universe” that integrates both humans and non-humans. In developing this new story that highlights the interconnections of the universe, their goal is to mobilize people to redirect their actions away from destructive and exploitive social, economic, political, cultural, and environmental practices.33 Berry helps provide a spiritual foundation for the scientifically driven ecology movement, proposing a new holy trinity comprised of immensity, intensity, and intimacy. At the core of this new movement is Ecotheology, a repudiation of anthropocentric ways of thinking and believing and the adoption of a cosmic awareness based on all of creation.34

Ecotheology developed in many Euro-American Christian churches during the late twentieth century because of an increasing awareness of, and response to, the environmental crisis. It has also been embraced within an ecumenical community and has been an important discussion point in the World Council of Churches, particularly in Vancouver in 1983 when universal peace and justice were specifically linked to the protection of the natural world through the concept of “Justice, Peace, and the Integrity of Creation.”35 Biologist Carolyn King points out the relationship between ecumenism, ecology, and economy, all of which are derivatives of the Greek oikoumene, meaning habitat or home.36 Extending this idea of “home,” Ecotheology “describes theological discourse that highlights the whole ‘household’ of God’s creation, especially the world of nature, as an interrelated system.”37 Ecotheology holds that the creation of oppositional categories such as culture and nature, religion and nature, and religion and science has had profound and negative effects on how we interact with our world, resulting in what is broadly understood today as an ecological crisis.

Malach’s letters written during the decade before she made The Story of Life indicate her concern with “ecologizing,”38 with taking concrete steps to protect the integrated human/non-human environment, and her awareness of the potential power of a fusion of ecology and theology for mobilizing action. As someone who was intensely interested in cosmology, Malach was receptive
to Ecotheology as a foundational discipline. She wrote: “our religious concept of time as being cyclical with the seasons has now become a wide open state of perpetual change through the revelation of the True Trinity – the sense of the divine, the sense of the human and the sense of the universe.” Malach’s worldview reflects Ecotheology’s idealistic character, as explained by ecotheologian, H. Paul Santmire: “the idea of divine immanence in the whole cosmos; a relational, ecological rather than a hierarchical understanding of God, humans, and the created world; a radically reinterpreted view of human dominion over nature in terms of partnership with nature; and a commitment to justice for all creatures, not just humans, highlighting the needs of the impoverished masses and endangered species around the globe.” These thoughts reflect Berry’s, who writes of an intimate relationship between humans and the universe that could be seen as the driving force of The Story of Life: “Our own presence to the universe depends on our human identity with the entire cosmic process.” He suggests, in terms of the eras of the earth, that we are moving into the “ecozoic” era, where humans recognize that they are part of evolutionary processes and have the capacity, the opportunity, and the responsibility to participate in them. In one of Berry’s “Twelve Principles for Understanding the Universe and the Role of the Human in the Universe Project,” he suggests, “each being of the planet is profoundly implicated in the existence and functioning of every other being.” After reading Berry’s The Dream of the Earth, Malach wrote of the excitement of understanding the earth “as a living unit – and that we are not only extensions of that living cell – we are that same living unit.” She later wrote joyfully, “What a great time to be living in!! … For the first time in the history of humans we are now beginning to see and understand with the universe itself. There is still so much to know – and for me the excitement is the realization that everything existing is interconnected – everything.” The Story of Life narrates a profound interconnectivity where humans have emerged from the energy of the cosmos and are both embedded within and continue to be contributors to the processes of evolution.

The importance of “narrative” is fundamental to the ecotheological movement. Fox, Berry, and Swimme all urge the development of a new narrative of the universe that takes into account both science and religion. Certainly the need for a new “narrative,” “epic,” and “story” of the universe and creation is fundamental to the movement and over the last three decades these words have featured in the titles of several influential books and organizations dedicated to the subject. Ecotheology reframes ecology as a moral dilemma as well as a scientific, economic, and political one and nomenclature must recognize this. The distinctions between these terms and the tensions that arise in analyzing them, specifically with regard to Ecotheology, point to the power of “Story” as linked to culture, myth,
and artistic voice. It becomes important for artists to express the story of the unfolding of the universe in different forms in order to transmit it intergenerationally as an epic, embedded within cultural expression. This associates the “Story” with personal drama that will engage people, rather than with “narrative,” which is more rooted in science alone. The role of “story” in the title of the mural *The Story of Life* encourages communal transmission and personal engagement, making clear that the work reaches beyond the “narrative” of science. Importantly it has “value mixed in with the facts,” which aids in promoting Ecotheology.46

The idea of “Story” is also evident through the mural’s large stylized figures, which “personalize” diverse elements of evolutionary processes. Through their rhythmic composition and vocabulary of abstraction these figures make visual associations with religious relief sculpture from Western and non-Western cultures, and thus also reference mythological and religious narrative structures. Malach’s approach to sculptural abstraction drew upon her early studies at the Pennsylvania Academy of Fine Arts and the Barnes Foundation, visits to the Metropolitan Museum of Art, and two extended study trips to Europe made possible through art school scholarships. She closely examined figurative representation in non-Western art that is suitable for expressing monumentality within modern art practices.47 As a mature artist Malach was “disdainful” of the label “religious art”: “she held that all art was spiritual as it spoke ‘to the inner nature of the human of those values common to all – love, joy, grief, sorrow, elation’ … It has the capacity to evoke a response within the individual on a higher plane. It could by definition be called religious.”48 In several previous murals she had used the same blocky human forms she employed as metaphors for evolution in *The Story of Life* to represent angels guiding both cosmic events and human experience.49 Angels are often understood to be heavenly messengers, and in each of these murals Malach associated them with cosmological forces, “as bearers of mystery.”50 The figures in *The Story of Life* can be understood, then, within the same context of mysterious energy associated with the universe story, a blend of forces set into motion by cosmological events and earth processes. But they can also be understood as a melding of those forces and life forms, which together form the basis of human origins and all existence today.

While the mural’s human figures are abstracted, they are also individualized: some suggest men and others women and, as each has unique facial features, they allude to the variety of peoples that inhabit the planet. In this manner the mural suggests not only a common evolution but also working together within a global society, despite individual and collective differences. The inclusion of such a variety of facial features ensures that a wide assortment of people can identify with the figures in the mural, allowing them to insert themselves into evolutionary development and encouraging
awareness of individual responsibility within the global community. The ideal of a global community had much appeal for Malach, who was raised in a Polish-Canadian home within a multicultural immigrant community in Regina and had lived in Turkey for several months as a young woman.

An early student mural in egg tempera, oil, and dry powder pigment, which earned her a travel scholarship, was described as a prairie nativity scene with children from many nationalities within Canada “depicting the building of a combined Canadian spirit.” In light of her belief that art could transform the world, *The Story of Life* was Malach's last chance to make an appeal for a global community that would work together for the betterment of the planet. Although she had already decided this would be her last large ceramic mural project, Malach died from heart disease before it was completed, leaving two unfired panels (Fig. 5). Finishing the mural was possible because of Malach's extensive community ties and wide circle of friends. Created as a representation of the unfinshed process of evolution, *The Story of Life* itself became an unwitting metaphor for the always-unfinished project of life.

The material of *The Story of Life* also speaks to the precepts of Ecotheology. From the perspective of ceramic art discourse, Ronald A. Kuchta, curator, art museum director, and art magazine editor, recognizes the powerful metaphorical associations attached to clay as the precursor material of ceramics.

Clay is the most natural, realistic and poignant medium for presenting ideas or images of the earth itself. It is in fact its essential material, at least on its surface. The earth, the origin and source of life, is a subject for art of greater significance today perhaps as we view the earth more objectively as a limited resource, one that we desperately need to sustain for living organisms in general and for human beings in particular.

The rhythmical disposition of sculptured forms and their horizontal arrangements can be compared to the stratification of the earth evident in the weathered shapes characteristic of the Badlands in which the Royal Tyrrell Museum is situated. The eroded hoodoo formations with their capstones are particularly obvious references, but there are also more nuanced allusions. To the imaginative eye, human shapes seem to thrust from the undulating weathered hills of the Drumheller Badlands, sometimes pushing forward, sometimes disappearing into the surface of the cliffs, as they do in the mural. The unglazed fired clay of the mural, which retains its natural beige colour, also points to the surrounding Badlands landscape where very fine clay particles, bentonite, become treacherously slippery when wet, giving the area its name. In many of the world's religions, clay is linked
to creation stories, which often contain allusions to “Mother Earth,” and both Fox and Berry make explicit mention of the sacredness of the earth and the interconnectedness of all biosystems to it. Recent biochemical experiments suggest that montmorillonite or bentonite can serve as catalysts for the chemical reactions needed to make vesicles that correspond to early living cells and can also help to transport RNA into such vesicles, as well as aiding the formation of RNA inside the vesicle. Life could then be seen as springing directly from clay, the same material used to make *The Story of Life*. The mural’s material reminds us that the eroded hills and valleys of Alberta’s Badlands have been the source of many of the museum’s fossils, the basis of Drumheller’s prosperity and the Royal Tyrrell Museum’s fame, and conceivably of the origins of life itself. It brings together the wonder of the cosmos and the earth beneath our feet.

Compositional elements, such as the rhythmic placement of the forms that flow across the surface and rise and fall within its three-dimensional relief, communicate delight in a sensual engagement with the world. Fox considered such overt joy in sensuality an important component of Creation Spirituality and in *Original Blessings* he exhorts his readers to recognize “earthiness and sensuality and passions.” The expression of this sensuality and passion is often associated with music and dance, and so these compositional elements in *The Story of Life* can also be seen as alluding to a musical score. Like musical notes, rhythmical circular forms alternate with strong horizontal and vertical lines, and the occasional diagonal flourish, while the uniform spacing of the geological time periods, despite the disparate lengths of time.
they actually lasted, as shown on evolution charts, evokes regularly spaced musical bars. The figures, like notes of a musical score, are grouped in triplets or quarter notes and move up and down across the length of the mural; bass and treble lines and chords. These rhythms are also experienced in the surge, swirl, pitch, and momentum of the bodies themselves, dancing to the music of life and the universe. Malach was a musician and musical references were common in her earlier ceramic murals, expressed in angels playing instruments and singing, in the incorporation of the forms and patterns of the instruments themselves within decorative motifs, and as the specific subject matter of certain works.58 In *The Story of Life* the esoteric concept of the music of the universe as order is evoked. Berry suggests music as a metaphor to help illustrate what he calls the “cosmogenetic principle,” where the order of the universe’s creative energy is characterized by the interrelated processes of differentiation, autopoiesis, and communication: “Music consists of both the particular notes and the governing themes. For without the notes the themes would have no power to move anyone; but without the themes the notes would only irritate and distract.”59 While in Ecotheology musical structure is associated with the underlying principles of cosmological evolution, it is also linked with the age-old intuitive human response to the mystery of the universe.60 This same impulse can also be seen in the contemporary compositions of R. Murray Schafer, an innovative Ontario environmental composer whom Malach admired.61 Schafer has suggested that in the modern era music has lost its participatory and ecstatic aspect through its enclosure within walls. Many of his compositions, such as *The Princess of the Stars*, premiered 1981 in Ontario and played in Banff National Park in 1984, are meant to be played on a lake along with the sounds of the animals,
birds, wind in the trees, and moving water, reminding us of the soundscape of a non-industrial world, where the diurnal and seasonal rhythms and sounds of the flora and fauna recall the origins of music. In a visual form, Malach, like Schafer, brings music to the wilderness, fusing creation and creativity.

Through evoking both science and religion, Malach’s mural questions the exclusive right of either to truth, breaking down disciplinary divisions and upsetting academic hierarchies. As environmentalist James D. Proctor points out in Science, Religion and the Human Experience, Albert Einstein famously articulated this troubled relationship: “Science without religion is lame and religion without science is blind.” Proctor suggests that by bringing human experience “into the science-and-religion equation,” by giving these fields “a human face,” we can understand religion, science and humanity in more complex ways. It is therefore worthwhile to consider The Story of Life as a work that proposes the complementarity, rather than incompatibility, of science and religion. The agency of The Story of Life lies in its fusion of the overt informational feature of science with the obvious transformational goal of religion, encouraging its audience to experience surprise through the unusual juxtaposition of science and religion.

Liminality thus emerges as fundamental to the mural’s agency. The Royal Tyrrell Museum educates visitors about palaeontological history and the mural poses questions about the human aspect within this history. The Story of Life destabilizes the categories of religion and science, brings together disparate art forms, and bridges exterior and interior spaces, while implying the interrelatedness of all aspects of the universe. Encountered in a liminal place and discursively situated in interdisciplinarity, the mural suggests that all life forms are at an important and fundamental threshold, pointing to humanity’s dependence upon and role within the outcome of evolution. As such, it sets the stage for possible cognitive, emotional, and moral change in the mural’s audience, exactly what Ecotheology maintains is needed to save the ecosystems of the world from current human practices. It suggests that the choices humanity makes now, at this evolutionary threshold, have the potential to affect fundamental societal, cultural, political, and cognitive structures. It conveys Berry’s message of the need “to create a new language, even a new sense of what it is to be human … to transcend not only our national limitations, but even our species isolation, to enter into the larger community of living species.” The Story of Life challenges us to re-evaluate how we define community and to live creatively in and through our world in order to recognize, cherish, and celebrate its complex interconnectivity. By suggesting the possibilities for a new wisdom-knowledge paradigm, it encourages us to “ecologize.”
NOTES


   Operational Exhibits and Displays – Case Files, Malach, Lorraine/Sculpture for Lobby, Royal Tyrrell Museum Archives.


5 Dr. Paul Johnston, phone interview with the author, 2 Nov. 2010.


7 Information on Malach’s ideas and attitudes, except where noted, was obtained through conversations with her friends, particularly Syl Kramer, Catherine Carpenter, Christine Rutledge, Father Don MacDonald O.F.M., Warren Nicholls, Kathryn Valentine, and Johnston.


11 Johnston, “Mural Unveiling.”

12 Malach, letter to her parents, 30 May 1955, Lorraine Malach Archives.


14 Several issues of these journals were in Malach’s possession when she died according to her executor. Malach also mentions these journals in multiple letters to Dolores Kramer during the last two decades of her life. Lorraine Malach Archives.

15 Malach kept many of these books beside her bed and frequently wrote in her letters to friends about her excitement in reading these authors. Her friends in both the scientific and religious communities also speak of her passionate engagement with these ideas, Lorraine Malach Archives. Father Don MacDonald, interview with the author, 13 Sept. 2010; Syl Kramer, interview with the author, 6 Sept. 2010; Brother Dominic Tessier, interview with the author, 31 Aug. 2010; Johnston, phone interview with the author, 2 Nov. 2010.
16 Johnston, “Mural Unveiling.”


20 Malach, letter to her mother, 18 Jan. 1955, Lorraine Malach Archives. Malach took “Confraternity of Christian Doctrine at the St. John’s night school to further the idea of pushing one’s religion – perhaps through painting…. ” Malach’s interest in ecumenism was expressed in a letter ca. 1976, to Dolores Kramer, Lorraine Malach Archives.

21 As a student, Malach wrote she was “living the way I believe. Not in complete austerity but really on the simple side – all art people do, serious art people – I can see I’m no special case. It’s just that all other things are so incidental.” Malach, letter to her mother, 26 Mar. 1955, Lorraine Malach Archives. In the early 1980s, she described herself in the media as a Franciscan, although members of the order have pointed out she was never formally affiliated with them. Elaine Carlson, “Lorraine Malach Between Commissions,” Regina This Month (June 1982): 4. Lorraine Malach interviewed by Ken Mitchell, Saskmedia, 1982. Saskatchewan Archives Board, vtr-6073.1. Tessier, interview with the author, 31 Aug. 2010.


24 The Blue Planet (1990), Director: Ben Burtt, Writer: Toni Myers, Producer: Graeme Ferguson for the National Air and Space Museum, Smithsonian Institution, presented by Lockheed Corporation and National Air and Space Museum.


27 Malach sent newspaper clippings to a friend about Fox and referred to him in letters when she contemplated the “future church,” which she eagerly anticipated. Malach, letter to Dolores Kramer, 30 Nov. 1992, Lorraine Malach Archives. The “future church” to which Malach refers is a Roman Catholic organization whose guiding principle is a “spirituality based on the life, death and resurrection of Jesus Christ, the


31 Malach, letter to her parents, 1955, Lorraine Malach Archives.

32 Berry, “Foreword,” vii.


36 Ibid, 43–45.


40 Santmire, “Ecotheology.”

41 Berry, The Dream of the Earth (San Francisco: Sierra Club Books, 1988), 17.


44 Malach, letter to Dolores and Syl Kramer, 1992, Lorraine Malach Archives.


46 The nuances among these terms, and the importance of these nuances to promote Ecotheology were discussed in an online forum published as “Forum: Epic, Story,


50 Bessie Bissett, “Italian art masterpieces studied by Regina artist,” *Leader-Post* (Regina), Lorraine Malach Archives.

51 Jacob Ketler, interview with the author, 26 May 2011. Ketler installed all Malach’s large murals from 1979 onwards, including *The Story of Life* in the Royal Tyrrell Museum a few months after Malach’s death.


56 Fox, *Original Blessing*, 61.

57 These works include *Spring and Summer, Autumn and Winter, Untitled* (Franciscan Friary 1977); *Stephan’s Quintet, The Opera Singer* (Christine Rutledge, Calgary, ca. 1981); *The Entertainers* (Timothy Vernon, Victoria, 1979); *Untitled* (Sturdy-Stone Centre, Saskatoon, 1979); *Exultation* (Holy Family Notre Dame parish church, Port Alberni, 1981).

58 Fox, *Original Blessing*, 61.

59 *Swimme* and *Berry*, *The Universe Story*, 72.

60 Fox, *Original Blessing*, 61.

61 Malach, letter to Dolores Kramer, Lorraine Malach Archives.


65 *Berry*, *The Dream of the Earth*, 42.

Située dans un musée de paléontologie, *The Story of Life* est tout d’abord comprise de manière scientifique, ce que viennent confirmer des représentations de notes, de fossiles, et d’éléments géologiques. Cependant, le langage visuel de la murale et sa présentation tiennent davantage de l’art : éclairée de façon dramatique, elle utilise un vocabulaire stylistique associé à l’abstraction figurative de l’art moderne du début du xxᵉ siècle. Les informations qui sont fournies nous apprennent que l’artiste en est l’unique auteur et nous renseignent sur sa démarche artistique. Les commentaires des visiteurs indiquent aussi une association avec l’art religieux et, lorsque Malach a soumis sa maquette pour approbation, le musée s’est inquiété de possibles connotations de ce genre. Malgré cela, lorsque le musée a réaménagé le hall d’entrée pour mettre la murale en valeur, ils ont souligné ce fait, créant un espace de contemplation avec un toit de tissu rappelant une tente.

De manière discursive, l’art moderne, la religion et la science sont souvent considérés comme incompatibles, mais *The Story of Life* insère les langages métaphoriques de l’art moderne et de la religion dans un espace scientifique.

Dans le présent essai, nous examinons le contenu matériel et visuel de la murale dans le contexte de sa situation pour comprendre comment et pourquoi elle amalgame la science, l’art moderne et la religion. Nous proposons que l’effet de la murale tient à sa propre liminalité discursive à
l’intérieur d’un espace liminal et, nous tournant vers l’écothéologie, nous soutenons que la murale provoque la transformation morale de l’humanité, alors que nous sommes au début de ce qu’on appelle l’ère écozoïque. Selon l’écothéologie, cette transformation est cruciale pour affronter de pressants défis écologiques et sociaux. Elle s’exprime à travers les écrits du théologien, écologiste et historien de la culture Thomas Berry et dans la spiritualité de la création élaborée par le théologien écologiste Matthew Fox. L’intérêt que Malach a toujours porté à la cosmologie et à la paléontologie, la pratique des beaux-arts et des arts appliqués, l’attrait pour la mystique chrétienne médiévale et le féminisme, tels qu’exprimés dans ses propres écrits, les rapports des médias et les interviews avec des amis, complètent cette discussion de la matière, de l’iconographie et du style de la murale.

Le contenu scientifique de *The Story of Life* raconte les dix premières périodes géologiques et l’évolution de la terre, depuis la formation du système solaire jusqu’à l’extinction des dinosaures. Malach a puisé à même ses connaissances scientifiques étendues pour représenter la chimie et la physique fondamentales associées à la cosmologie, à la formation biologique de la vie et à sa diversification, ainsi qu’aux cycles d’extinction et leurs conséquences pour les formes de vie. Les dimensions monumentales des métaphores humaines suggèrent, cependant, la possibilité d’un contenu religieux dans la murale, car la religion procède principalement au niveau de la métaphore. Malach avait déjà utilisé des figures semblables dans ses céramiques destinées à des espaces religieux catholiques, et ces figures plus grandes que nature, sculptées dans l’argile naturelle, font référence à d’autres sculptures religieuses monumentales, occidentales et non occidentales. Pendant la dernière décennie de sa vie, Malach, catholique fervente mais contestataire et parfois rebelle, s’était de plus en plus attachée à l’écothéologie. L’écothéologie propose un nouveau paradigme qui unit la science et la religion pour célébrer la création originelle et la récréation continue de l’univers, où l’aspect anthropocentrique de plusieurs religions actuelles est remplacé par un autre qui glorifie les humains aussi bien que les non-humains. L’utilisation du mot « histoire », dans le titre de la murale, est une référence aux tentatives de l’écothéologie d’exprimer ce nouveau paradigme d’une manière intergénérationnelle et culturelle, au mythe et à l’expression artistique. L’idée d’histoire, dans la murale, est portée par les figures stylisées. Leur légère individualisation faciale suggère à la fois l’évolution commune et la communauté universelle et encouragent une approche coopérative à la résolution des problèmes écologiques et sociaux, un des messages au centre de l’écothéologie. L’argile, comme matière, fait référence aux limites et aux possibilités de la terre elle-même, les Badlands de la région de Drumheller, et à la formation de la vie que l’on retrouve dans la littérature aussi bien
religieuse que scientifique. Les éléments de la composition comprennent des allusions à des partitions musicales avec des mesures et des groupes de notes qui expriment l’ordre de l’univers ainsi que l’émerveillement et la joie de l’humanité lorsqu’elle fait l’expérience de ce mystère. La murale disloque les structures discursives établies, renverse les hiérarchies scientifiques et religieuses traditionnelles et souligne l’incertitude de l’avenir du monde et de toute vie si les modes de pensée modernistes prédominent.

Traduction : Élise Bonnette