

Chapter 29

A Cosmology for our Time

Jennifer Morgan

Blake made a cosmology with a full cast of characters. Michelangelo made his cosmology in the Sistine Chapel mixing Biblical (Adam-God) with Pagan (Delphic, Sybil). The Byzantine world made its cosmology with the Pantocrator (Virgin and Child). Cambodian Angkor Wat took iconography and cosmology from India ... and developed its own way – Apsakas, Boddhisatva-Lokesvora, Deva, Naga, and Garuda. Now it is time that I made a cosmology for my own time, an iconography (abstraction) that will work with scientific concepts – but there must be some form of *human* participation ... with atoms, electricity, brain waves, outer space, emotion, and mood ... [all interacting together].

—Barbara Morgan
11 November 1960
Notes in her daybook.¹

You could say it was in my blood and the air I breathed as a child – the oxygen of cosmology. My grandmother wrote the above words when I was five years old and just coming into my second plane of development, questioning where everything came from. A photographer, she developed an iconography of light and movement to illustrate a worldview of origin and connection, particularly in her images of dancer Martha Graham.² A friend of mythologist Joseph Campbell, she was immersed in Native American, Eastern and Western cosmologies, and she strove to integrate those ancient human connections with the awareness emerging in science. Her photos, some nearly life-size, leaned against the walls of her large studio, and I would stand in front of them and copy Martha Graham's gestures. Year after year of exposure to these images, I internalized them.



Plate 29.1: Barbara Morgan's celebrated photograph of dancer Martha Graham in 1940.
Source: Courtesy of Jennifer Morgan.

Three generations of my family spent summers at a camp in the Adirondack Mountains in New York. We worked on an organic farm that had run since the 1930s, climbed mountains, canoed and learned how to live in nature. I would come home after the summer with strong calves and thighs that shocked my mother! My grandmother composed a book about the camp – *Summer's Children*.³

Another important thread in my formation was the work of my mother, Maureen Morgan, as a music director. A gifted liturgist, she was at the forefront of experiments in church celebrations in the 1960s, combining improvisation, light shows, drumming and dancing. She worked at a Methodist Church when I was in high school and later became music director for St. Malachi's Roman Catholic Actor's Chapel in New York, where she arranged for actors and dancers from Broadway to sing in the choir and perform.

Thus, the threads of cosmos and earth ran through my childhood in arts, camp, school, and church. My grandmother's and mother's yearnings to experience a larger reality, intellectually and affectively, encouraged me to do the same, and so I strove to put things in the largest context possible.

I became an undergraduate at the University of San Francisco, a Jesuit school, in the late 1970s, where I majored in theology. I was drawn by Anselm of Canterbury's cosmological view of God as '*... aliquid quo maius nihil cogitari potest ...*' (something than which nothing greater can be conceived).⁴ During my studies, I came into contact with many people involved in social justice movements in Central America and in the Philippines. This introduced me to a very different understanding of global power and how it affected people in Third World countries.



Plate 29.2: Work in the rice paddies in the Philippines, 1977.
Source: Photograph by Jennifer Morgan.

I became involved with the pro-democracy movement in the Philippines, during the dictatorship of Ferdinand Marcos (1965–1986). In 1977, I was working as a journalist, interviewing farmers, and became an eye-witness to the devastation caused by the first Green Revolution, which sought to increase food production through hybrid plants. Their efforts provided higher yields, but required herbicides and fertilizers that led to poverty, sickness and destruction of communities – unlike the traditional plants used for thousands of years.⁵

I began asking myself: What was the perspective behind this focus on production, a focus that had allowed the polluting of land, killing of fish, impoverishing of farmers and

shattering of villages? A cosmology seemed to be at the base of the problem, one that did not look at a whole picture of relationships and did not value people or land. I didn't have a framework to understand that importance then; I just knew that something was wrong and that it had something to do with a basic worldview.

Writing about the huge impacts of agricultural methods on the Earth and human communities and health was not enough. I wanted to do something. When I returned home, I became director of the Northeast Organic Farming Association of New Jersey and a board member of the National Organic Trade Association. This was at a time when national standards were just being developed for a definition of 'organic'. The lessons I learned in the Philippines were important for the United States, where similar methods of farming were being promoted. NOFA-NJ started a certification process, educational programs for growers and consumers, marketing techniques, and much more. It was a fulfilling seven-year period of promoting organic agriculture and seeking better profits for farmers. It also illustrated a different way of relating to the Earth, one that focused on soil, health and the whole community.

Through this work, I met Miriam MacGillis, a Dominican Sister who founded Genesis Farm in Blairstown, New Jersey. The centre, a working farm, offered Earth literacy programs, which teach the story of the universe, as grounded in the latest science, and informed by perennialism, or wisdom traditions – a spiritual core common to all religions. Each program at the centre drew people from around the world who wanted to learn science, as well as to experience the universe story through meditation, artwork and sustainable lifestyles. This experiential learning was accomplished by working on the farm, cooking and using alternative energy sources.

Sister Miriam called to encourage me to take the Earth Literacy program. In the spring of 1997, I started the two-week program and was hooked. It gave me a philosophical basis for a deep inquiry into cosmology. We read the works of Thomas Berry (1914–2009), a Catholic priest whose pioneering work in cultural history had laid the foundation for centres like Genesis Farm. Dr. Larry Edwards, a Harvard trained chemist, who had been inspired by Father Berry's work, provided us with the science

behind the philosophy. And we engaged with the works by Brian Swimme, a mathematician who bridged the divide between science and spirituality.

Berry's landmark essay, 'The New Story', was published in 1978. In it, he wrote that the *old story* no longer worked. This was the old cosmology that had oriented and grounded humans, gave meaning and guided behavior. This essay begins: 'It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The Old Story – the account of how the world came to be and how we fit into it – is not functioning properly, and we have not learned the New Story.'⁶

In order to internalize this new story of emergence, we did a 'cosmic walk' on a spiral painted on the floor in the library. Accompanied by meditative music, we started at the center of the spiral, lit a candle, representing the Big Bang, and slowly walked out of the spiral, lighting candles at moments of major transformation – the first stars, primal stars going supernova, formation of the solar system, beginning of life ... till the coming of humans to the present age. The beautiful retreat setting, the intellectual rigor and the experiential aspects of the program all evoked a cognitive and affective engagement that was transformational.

I understood what had been missing in the Philippines and in chemical-intensive agriculture around the world ... it was a sense of relationship and reverence for land, plants and other humans – a sense that came from a larger context, from being part of the community of life, inside an evolving universe. And this same affective engagement was missing in so many areas of postmodern life, not only in agriculture but also in education, medicine and elsewhere. My grandmother's vision of a cosmology based on science and that integrated meaning with emotion was beginning to take shape before my eyes. The principle of emergence seemed to be at play within us – her yearning somehow emerging into some form of fulfillment in my life.

An assignment toward the end of the program was to tell the story of the universe in our own way. I wanted to tell the story in such a way that I felt it in my body. So, when it was my turn, I told the story in first person, as if I was the universe being born, turning into stars, Earth, the first life, etc. I exploded, rolled on the floor, screamed, ran around

the room, danced, enacted love, labor, birth and death. When I finished, there was dead silence in the room. I thought for sure that was it and I'd never be allowed back to Genesis Farm again. Then Susan Golas, the first to speak, said, 'That was beautiful!' I was shocked to hear the word, because that was definitely not the operative word in my mind when I conceived of this form of storytelling. Powerful, explosive, perhaps ... but *beautiful*? For several years after that, I was asked to come back and do the telling for succeeding groups in Earth Literacy programs.

I continued in the three-month program, commuting three hours round trip from my home in Princeton. My son was six at the time and enrolled at the Princeton Montessori School. I had no knowledge of the Montessori curriculum of Cosmic Education, including its 'Five Great Lessons', which were developed more than sixty years ago.⁷ As it turned out, just at the time that I was delving into a grand cosmic narrative, my son was learning an age-appropriate version of it in his class. Of course, I had to teach him everything I was learning. He was my first audience. I taught him through bedtime stories about hydrogen forming inside the Big Bang, hydrogen clouds flaring into stars, stars and supernovae fusing the elements for life, star dust giving birth to the sun and earth and humans. It turned out, remarkably, that he was actually interested in what I was saying, and would ask the most amazing questions, like: 'Mom, what's the texture of the edge of the universe?'

These great lessons were taught at the elementary level. This is when children are in their sensitive 'cosmic' period, asking big questions about where everything comes from and why we're here. I started to develop the stories further and tell them to groups of children, refining the stories with their input. I worked with a group of eight-year olds at the Princeton Charter School, and asked them if I should cut out the part about the Mother Star dying in a supernova. All in unison, they shouted, 'No!', and then one girl said, 'It gives us a chance to cry.'



Plate 29.3: Jennifer Morgan and her son, Morgan Martindell, on a ‘cosmic walk’ in 1997.
Source: Jennifer Morgan

Soon after my experience at Genesis Farm, I had decided to turn these stories into children’s books. I struggled to create the books over ten years, the costs and setbacks should have stopped me. But the children, most importantly my son, kept me going. I would have the most amazing conversations with them, and could see that entering into a ‘deep time place’ was hugely entrancing for them, and for me. I’ll never forget when I was telling the story to my son and one of his friends about how the universe was expanding. ‘Stop right there!’ said Lars. ‘Is that true that the universe is expanding?’ His face twisted as he tried to take in this idea. I paused for a long moment, and said: ‘Yeah, that’s what we’re finding out.’ This idea stopped him in his tracks. That was one moment among so many that kept me going ... like the time when Cory, a nine-year-old girl said: ‘This story makes me feel like I belong.’

My marriage wasn’t going well and came to the breaking point. I moved into an apartment building that we owned in Princeton, but was running out of money fast. I happened to talk to Bill Nathan, a policeman and friend who was originally from India.

He said that a friend of his, technologist Rajiv Malhotra, had recently started the Infinity Foundation, an organization devoted to promoting philosophical dialogues and grassroots community projects in the United States and India. We went out for lunch at a local Indian restaurant, where Rajiv gave me lots of good ideas for my book. Two weeks later, I received a check, enough to help me through the next leg of the journey.

I had nineteen rejections before I found Dawn Publications, a California press that produces books about nature for children.⁸ One evening, after dinner, I explained to them how we needed a special kind of artist to convey the power and energy of the story. As we walked down the street, light streamed onto the sidewalk from an art opening. So we walked into the gallery and found a huge painting of galaxies on the wall, with the artist, Dana Lynn Andersen, next to it. We thought the same thing ... 'Is she the artist we're looking for?' We wandered around the gallery and learned that Dana had been inspired by Thomas Berry and Brian Swimme. And that was the beginning of a partnership that would take us through the entire trilogy.

I wanted the science in the books to be rigorous and up-to-date. I had the good fortune to live near Princeton University, so I sat in on courses, including one with astrophysicist Neil de Grasse Tyson, long before he became a science star.⁹ From this kind of interaction, I was able to develop in detail the most important stages to cover in the books, as well as the science concepts. The professors were generous with their time. Tyson read the manuscript for book one and provided suggestions. I often would walk up after class and ask, 'Can you explain to me what you just said in English?!'

For book two, *From Lava to Life*, which covers the beginning of life through the extinction of dinosaurs, I moved to the Department of Ecology & Evolutionary Biology. As I developed the books over a ten year period, I felt I was living the entire story. For book three, *Mammals Who Morph*, which covers mammal (including human) evolution, I moved to the Department of Anthropology. Jane Goodall read the manuscript for this book and provided five pages of critique.¹⁰ *Born with a Bang* was published in 2002, *From Lava to Life* in 2003, and *Mammals Who Morph* in 2006; they are used in classrooms around the world.



Plate 29.4: Front book covers for the Universe Story Trilogy.
Source: Dawn Publications.

In 2011, I met Cynthia Brown, one of the founders of the International Big History Association, in Berkeley. In this way, I made a connection with Big History. This was yet another opening into a huge world and exciting look at a grand narrative that further incorporates a detailed human history into a larger narrative framework. It also examined patterns of emergence across the entire narrative, including physics, chemistry, life and human evolution. The potential for integrating this approach into education at the secondary and college levels was considerable.

Over the past ten years, I've provided programs in schools, at conferences and for teacher-training programs. In 2015, I'm scheduled for teacher workshops in New Jersey, Colorado, Texas, California, Pennsylvania, Indiana and Toronto. All are centered on a comprehensive science narrative, a deep time pedagogy that combines Montessori education, Big History and the Story of the Universe narrative.

Storytelling is a powerful way to evoke the cathartic experiences that I first felt at Genesis Farm. Such experiences are transformational and help to generate a deep sense of belonging and excitement in being part of an evolving universal process. Such responses have been noted by a number of Big Historians, including Craig Benjamin, Fred Spier and Barry Rodrigue. Barry Wood made narrative central to his Big History course development, while Rich Blundell has used it as a motif of his Ph.D. dissertation on Big History.¹¹ On more than one occasion, teachers have been moved to tears. In order to

dramatically engage the audience, I wear a black cape, covered with LED lights, shining through the satin fabric, which represents the cosmos. I begin and end the story by shaking a thunder-tube into a microphone. These props help to ritually transport people into ‘deep time’ and help them to engage in a participatory experience. As Joseph Campbell noted in his, *The Power of Myth* series, ritual’s primary function is to evoke a palpable sense of participation, messages that my grandmother and mother had instilled in me from as far back as I can remember.¹²

Most people feel a strong pull toward this ‘deep time place’, but some are ambivalent. During one program, a teacher told me: ‘Teaching the cosmic story is like opening a Pandora’s box, I’m afraid that I’ll get so entranced that I’ll forget about the common core.’ In a simple statement, she articulated a tension between a transformational experience and staying in a world proscribed by mainstream academic constraints. In the Montessori pedagogy, these experiences are encouraged as important for igniting a passion for learning. Under this approach, once a student’s imagination is ignited, the thirst for more comes from the child, while a teacher takes on the role of coach.

I came to see the different lineages of my productions – Montessori Cosmic Education, the Story of the Universe, Big History and others – as all fitting into something larger than each by itself. As I moved from world to world, I noticed that many in each lineage didn’t know about the others. Montessori educators have been using their Cosmic Education curriculum for decades and developed ways of teaching for the elementary levels on up. Big History has been filling a huge need at the secondary and college levels. The *Story (Journey) of the Universe* programs for teachers have brought important and very different ways to enter into the cosmic narrative.

There seemed to be a need for a place where all of these lineages could be differentiated, acknowledged and allowed to interact, each coming from their respective strengths. So I formed the *Deep Time Journey Network* with board members from all these lineages. It is a place where individuals and organizations add profiles, resources and events, as well as start groups and conversations on a forum. Formed in 2014, it has 300 members in 11 countries. Most are educators of all levels, clergy, musicians, and

artists. The simple project of identifying who's doing what and where has been energizing.¹³ One thing is clear – the impulse to understand a grand narrative and its implications is showing up all over the world in many different ways – with different approaches and emphases.

My grandmother planted the seed of her desire to create a cosmology for our time, one that integrated a cosmic narrative with human affective engagement, leading many years later to my own efforts to foster knowledge and experiences of deep time that transform us and how we see everything.



Plate 29.5: Barbara and Jennifer Morgan, Scarsdale, New York, c 1972.

Source: Photograph by Phil Mezey. Jennifer Morgan collection.

¹ Barbara Morgan, grandmother of the author, was a renowned artist and photographer of the twentieth century. She was known particularly for her iconic images of American modern dancer and choreographer Martha Graham (1894–1991).

² Joan Acocella 2011.

³ Our family summered at Camp Treetops in Lake Placid, New York.

⁴ Anselm of Canterbury, *Proslogion* (Faith Seeking Understanding), 1078.

⁵ In 1960, the Ford and Rockefeller foundations had set up the International Rice Research Institute with the Philippine government. I was in the Philippines for the People's Revolution of 1987, when Corazon Aquino became president, on EDSA Avenue when Marcos' tanks were stopped by the people. As a journalist for *Vogue* magazine, I interviewed Aquino and was attacked at one of the polling places during the election.

⁶ Thomas Berry 1978: 1.

⁷ See Jos Werkhoven's chapter in volume 2 of our anthology.

⁸ Muffy and Glenn Hovemann are the owners of Dawn Publications.

⁹ The other courses were taught by James Gunn (a director of the Sloan Digital Observatory's project to map the universe) and Gillian Knapp, and another course by Michael Strauss.

¹⁰ Evolutionary biologist and climate scholar Steve Pacala and Jeanne Altman, an evolutionary biologist with a focus on mammals, were generous with their time and helped to identify key themes for each page. Professor Alan Mann was an incredible help too.

¹¹ Craig Benjamin 2009. Fred Spier 2005. Also, see the chapters by Barry Rodrigue and Barry Wood in volume 2 of our anthology, as well as Rich Blundell's chapter in volume 3.

¹² Joseph Campbell 1988.

¹³ Deep Time Journey Network: (www.deeptimejourney.org).