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Cosmological Spirituality of Catholic Sisters
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The phrase "cosmological spirituality" reaches back into the earliest time of our tradition, when theologians spoke of the mystical body of Christ. This concept is rooted in the New Testament, in St. Paul's epistles, both to the Corinthians and the Romans, which use the image of the cosmic Christ -- a body formed by humans guided by the mind of Christ. In later centuries, Church Fathers, including St. Augustine, reaffirmed and amplified St. Paul's assertion that the community of believers is a spiritual extension of Christ's body.

The language and the ideas used by these theologians are more than a thousand years old but their insights have been extended into our contemporary world by the Jesuit paleontologist Pierre Teilhard de Chardin. Teilhard's word for the cosmic Christ is the "noosphere," a word he invented exactly one century ago, in 1923 Paris. He conceived the word in terms of Earth's development which began as molten rock, a geosphere, then constructed life which spread over the planet, a biosphere, and then brought forth human thinking which also spread over the planet, the noosphere.

Teilhard placed his thinking about the noosphere in our current evolutionary understanding of the universe.

The universe began with a burst of matter and energy fourteen billion years ago. This discovery of an expanding universe was made by Edwin Hubble in his observatory atop Mount Wilson. This was a strange and unexpected discovery. Even more intriguing, the galaxies the farthest away were rushing the fastest. The galaxies nearby were rushing away more slowly. When scientists articulated the conceptual history of the universe, they found that all of the galaxies came from the same place. All of the matter and energy in the universe burst forth at the same time, fourteen billion years ago.

It is worth noting that the major scientists of the twentieth century did not like this discovery. Even Albert Einstein, who was so key to the whole development of cosmology. In fact, for years he denied the validity of a cosmic birth. You see, physicists did not like the idea that the universe was changing. That it began in a simple state and complexified. Physicists preferred the notion that the universe was eternal and that any complex objects emerged by accident. The new theory, as articulated by George Lemaitre, argued for a *cosmogogenesis*, a universe that develops and complexifies through time. Einstein was arguing against the cosmic birth because he was hoping to maintain his faith in an unchanging cosmos. But then Einstein took a trip with Lemaitre to Mount Wilson. Einstein looked through the telescope at the galaxies and realized he was wrong. He accepted his defeat most graciously saying, "Lemaitre smashed my idea of an unchanging universe with a hammer blow."

Our discovery that the universe had a beginning is our discovery that the universe develops like an organism, which is what we mean with the word "cosmogogenesis." This development of the universe takes place through the power of relationship. Through our study of the history of

cosmogogenesis, we have come to see that relationship is the most fundamental power in the universe.

For example. In the fireball at the beginning of time, protons enter relationship with electrons. Together they gave birth to the first hydrogen atoms. A hydrogen atom is a new entity in the universe, an entity millions of times larger than the particles that actualize it. With the emergence of these primal atoms, the universe could begin building the galaxies. This dynamic holds at every new level of development: throughout fourteen billion years, relationships determine the directions of the universe's unfolding.

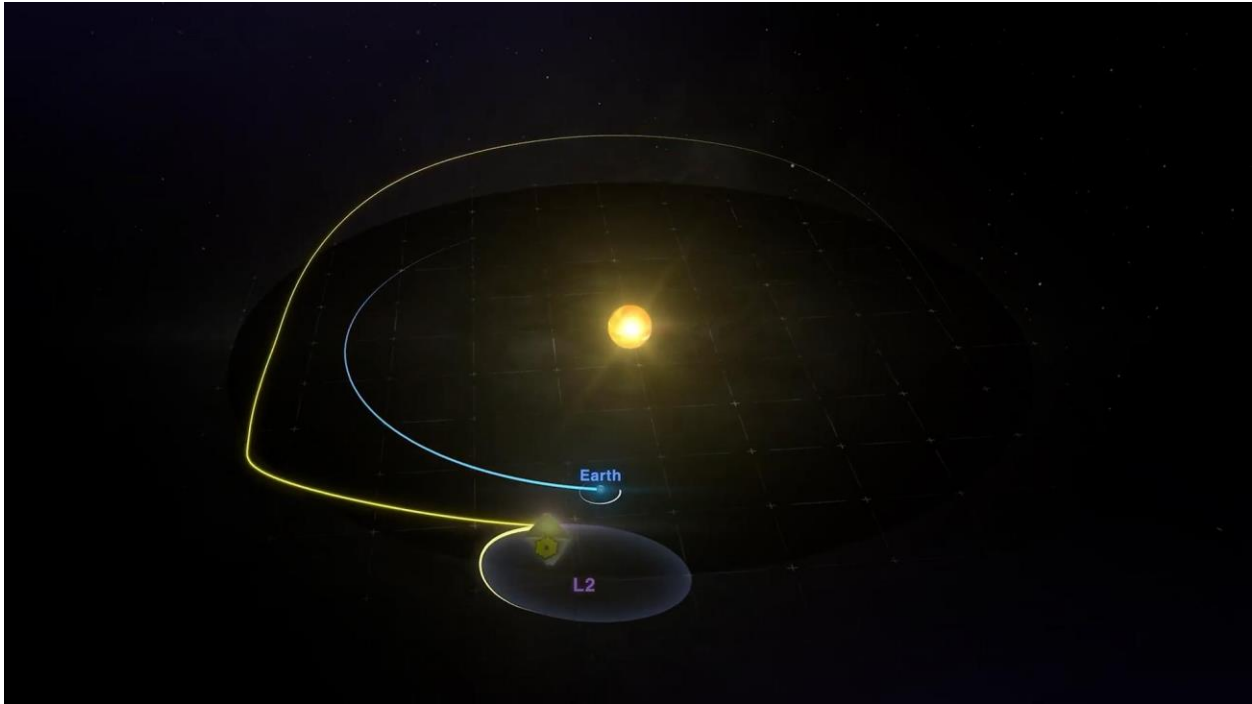
If we go to the life world, we see this power of relationship at a later stage of the universe's development. For three billion years, life on Earth consisted solely of unicellular organisms. But then, some 700 million years ago, these unicellular organisms entered into relationships with each other. And here is the great mystery: over time, these relationships led to oak trees and elephants.

By carefully reflecting on this fact, we take another step into cosmological spirituality. These unicellular organisms were smaller than the sharp end of a pin. They certainly could not have had any idea that they were entering a process that would eventuate in zebras. In their own way, these unicellular organisms were drawn by sacred mystery, the sacred mystery of cosmogenesis. Because they were bold enough to follow that path, they constructed millions upon millions of animal and plant species.

Now we come to relationships in the human world. One of the most surprising discoveries in 20th century biology is the near identity of chimpanzees and humans at the level of DNA. We are 98.6% the same genetically. Yet, such differences in our functioning! Over the last ten million years, Chimpanzees have not changed, have not moved from their habitat in equatorial Africa. While humans, over the past hundred thousand years, have invented symbolic language, learned the biology of their bodies, built ten thousand cities, flown to the moon, constructed libraries all around the planet, and created a network of communication that puts an individual human in potential contact with every other human around the planet.

Our DNA remains the same as the DNA of chimpanzees. Which means that these human accomplishments did not come from any change at a biological level. These actions came from the ability of humans to enter a new kind of relationship that brought forth the collective. It is this collective that St Paul called the cosmic Christ and Teilhard de Chardin the noosphere.

I want to give you a visual sense of this. Here in eight images is a story of the cosmic Christ in action, in the field of astronomy. Similar stories could be told in the fields of education, governance, social justice, and all initiatives involving the collective "we" of humanity. I focus on astronomy only because it's a field I know.



1. The L2 Stationary Point.

Let's begin with mathematics. When humans first emerged seven million years ago, they had no mathematics. All of it had to be created. As each generation of humans built upon the mathematics of the previous generations, we eventually arrived at the equations for gravity first articulated by Isaac Newton in the seventeenth century. Mathematicians began analyzing these equations. With each advance in understanding, another step in knowledge became part of the heredity of humanity. This points to the crucial difference of humanity when compared to other mammals. Humanity can enter into relationships with other humans who have died but who have bequeathed to us their gifts of understanding. One of these individuals is Joseph-Louis Lagrange who in the eighteenth century found a spot where gravitational forces in our solar system cancelled out. One of these spots was a million miles beyond Earth. Any object placed on that spot would not move with respect to the Sun and Earth. That spot, called L2, is where the James Webb Space Telescope was placed.



2. The construction of the James Webb Space Telescope.

Who built the James Webb Space Telescope? Well, certainly the hundreds of engineers who came from 14 different countries. Of course we need to also include the scientists who discovered the crucial mathematical equations. And then we have the teachers who taught the engineers and the scientists. We need to include the farmers who fed the engineers and scientist, just as we need to include the political leaders who maintained stability in the cities so that this development could take place. You see my point, I'm sure. It was this entire collective of billions of humans that created the JWST. That is the noosphere in action. All these humans worked together, united by a single aim, to know the nature of reality.



3. The human eye.

To get a feeling for the unified nature of the noosphere, we can compare it to a human body. The electrical signals originating in the brain position our eyes to focus on what we want to see.



4. Technician.

In the same way, technicians at Nasa send out electronic messages to...



5. The Noosphere's eye. .

...the Webb's electronic eyes, telling them where to focus. This entire system involving Earth, Sun, telescope, and Nasa technicians is the noosphere. Billions of people, the majority of them no longer among the living, can look at the Webb telescope and say, with accuracy, "We created you."



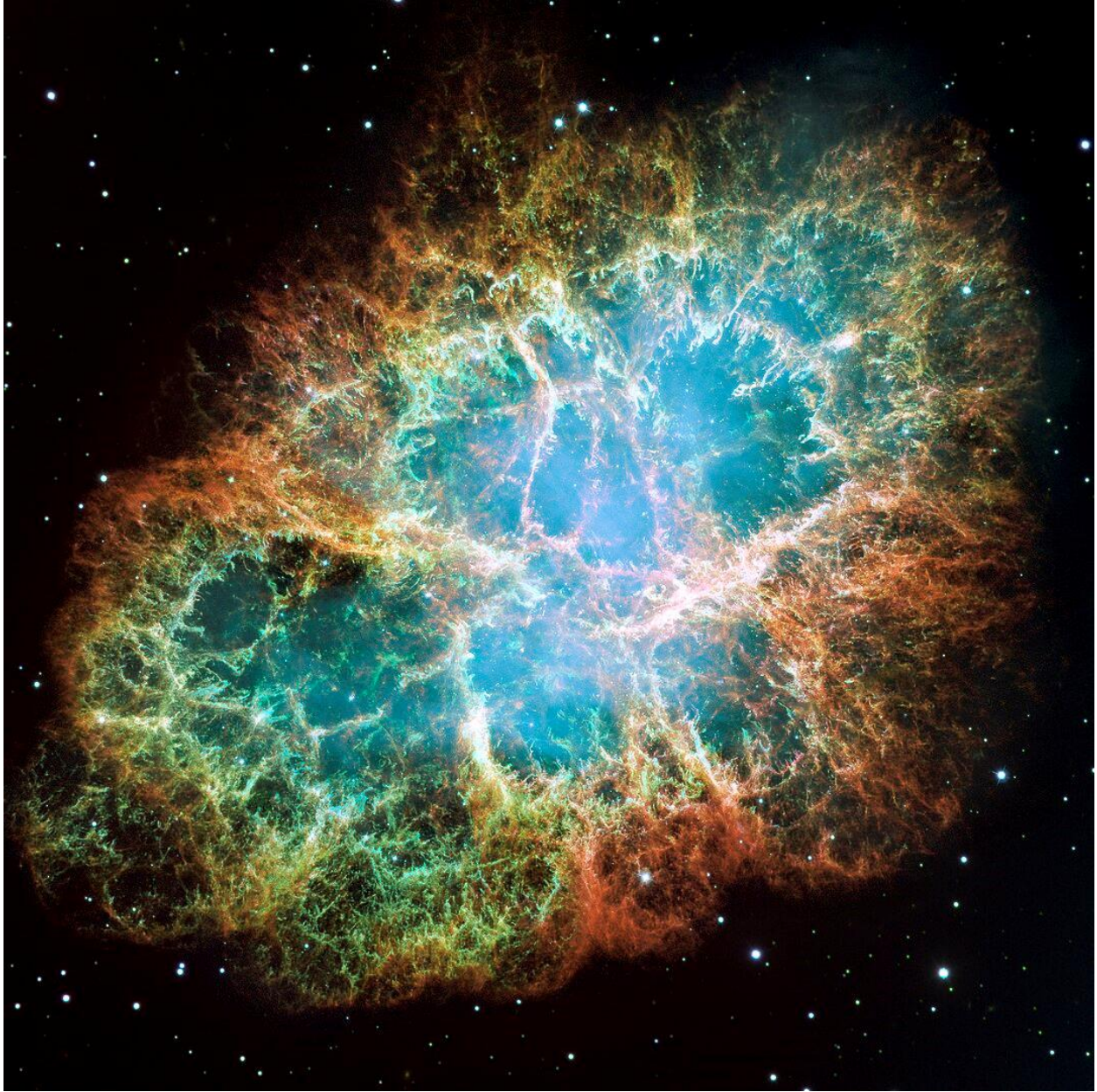
6. A million galaxies.

Let's reflect on what the cosmic Christ has discovered. In this image, each tiny dot of light is a galaxy. Each galaxy has 50 billion stars. Behold the glory of our creator. The mathematical cosmologist Stephen Hawking discovered that had the expansion of the universe been altered at the start by even a tiny amount, these galaxies would never form; life would never form; human mentality would never form. Even if the expansion rate were changed by one part in a trillion trillion trillion, the resulting universe would be barren. It would scatter into dust or collapse into a black hole. As we take this in, as we dwell in the elegant dynamics of the expanding galaxies, we are witnessing the divine care that suffuses the universe.



7. Pillars of Creation.

Compared to our galaxy, these Pillars of Creation are small, but compared to the human body, their size is almost unimaginable. The top pillar is seven lightyears in length. Which means our entire solar system would fit inside that pillar. In fact, a hundred thousand of our solar systems could be lined up in that pillar without touching one another. This is the magnificent universe in which we live in. New stars are being created in those pillars and throughout the universe. Older stars are exploding and dying. Though we are democrats and republicans, Americans and Chinese, buddhists and Christians, all such designations are secondary. The primary truth is that we are *all* cosmological beings, all brought forth by divine creativity. To recognize our commonality with all beings is to take another step into cosmological spirituality.



8. Supernova Explosion.

After a certain span of time in which all the elements are created in the core of a large star, it explodes. Because of that explosion, we exist. Every element of our body was fashioned inside a star. The explosion of a star is a primary revelation of love at a cosmological level. A love that is a divine give away. A love that holds nothing back. A love exemplified by the history of Catholic sisters. A love that reveals the heart of divinity. The star dies in its final act of generosity, and out of that generosity, the future of the universe is born. Take this image to heart. It is the cosmological form of your love.

As this could be the last time I will address the LCWR, allow me to end with a personal note. For the last ten years I have been writing *Cosmogogenesis: An Unveiling of the Expanding Universe*, the story of my own entrance into cosmological spirituality, especially through my encounter

with the passionist monk, Thomas Berry. This process of reflecting on my journey showed with great clarity how my intellectual and spiritual life came from my work with the Catholic sisters.

Sister Isabelle Mary introduced me to the mathematical study of stars

Sisters Jane Blewett, Alexandra Kovats, and Toni Nash, showed me that the sensibilities of women had to become central for anyone who desired to become a cosmic storyteller

Sister Marya Grathwohl showed the power of the new cosmology for liberating prisoners.

Sister Linda Gibler connected the sacraments to cosmological creativity.

Sisters Gervaise Valpey and Miriam Therese McGillis taught the deep relationship of food and cosmology

Sisters Mary Southard and Blanche Gallagher created cosmological art in the tradition of St Hildegarde

Sister Jeanne Clark connected social justice with cosmology

Sister Anne Marie Dalton placed the new cosmology in Catholic theological tradition

Sister Anne Lonergan created a womb for deepening our understanding of the new cosmology.

Sister Ilia Delio made clear that spirituality and technology could be combined

Sister Dolores Rashford opened her college to the study of cosmological spirituality

Drawn by Sacred Mystery, we Catholics are entering a new world, a new cosmology, a new spirituality. And after all that you have given, we ask you for yet one more thing. That you tell the story of your spiritual journeys. You poured yourselves out, you gave away your lives. Because of the death of a star, Earth's life came forth. The Pachal mystery is woven into the very fabric of the universe. Because of you, my life and the lives of millions of others, came forth. It is the time to celebrate your journeys into the spirituality of a supernova's generosity, the spirituality of the cosmic Christ.