A Scientist Responds to Thomas Berry's Cosmology

By Brian Swimme

My own professional training is in mathematical physics, and in this essay I would like to indicate what a scientist finds valuable and unique in Thomas Berry's work.

Before I get to Thomas Berry's contribution, I think it's important to bring to mind two facts about contemporary society. The first is the general apathy scientists have for religious thinking in general. I was reminded of this at a conference I attended for Catholic scholars held at the University of California at Berkeley. One physicist came and one mathematician . . . and this from a university that employs hundreds of scientists. The second point is the fact that about half of the world's scientists and technologists are employed in war research and development. And how many of the remaining scientists are employed by corporations heavily implicated in ecological destruction?

The context for my remarks is this: We are all suffering under the threats of war and ecological devastation, and yet our spiritual or ethical traditions seemingly stand by unable to make a difference. They do show up at the sidelines and moralize, but it always comes at the end of the game. This moral criticism is of great importance, surely, but it is offered too late. It comes only after the science and technology has been taught.

What is missing, and what Thomas Berry provides, is a functional cosmology that will enable the human community to organize itself in a way aimed at planetary health. Nothing less than a comprehensive vision of the universe is required. A new social theory, a new psychological theory, a new economic program will make no impact on the scientific-technologica1 trance that is behind our impasse.

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Thomas Berry's achievement is to position himself within the knowledge that scientists and all the rest of us

regard as obviously true. His starting point is natural selection and genetic mutation, the second law of thermodynamics, the initial singularity of spacetime, the innate releasing mechanisms of neurophysiological response. His starting point is the universe as it has been discovered by our contemporary scientific modes of understanding. By taking the universe as primary, he is able to work out a cosmology that is meaningful to anyone educated in modern ways of knowing. It is this cosmological achievement that must be understood if his work's full significance is to be appreciated.

Before going further into a discussion of the main outlines of his cosmology, I think it might be helpful to say briefly what Thomas Berry does not do. I do not mean to imply that these other approaches are without value. I am simply trying to clarify what is unique in Thomas Berry's thought.

(1) He does not set out to prove that religion and science are compatible. There are a number of thinkers involved with this enterprise. They examine the methodologies and epistemological assumptions of scientists and theologians, and arrive at subtle distinctions concerning truth claims and so forth. All of this is absent from Thomas Berry's work.

(2) He is not interested in adjusting the world of the sacred to fit scientific categories of thought. Such a program has been carried on throughout the scientific period, based on the assumption that science is the whole truth and needs to eliminate the superstitious claims of religion and so forth, all ending in an unacceptable belittling of reality.

(3) He does not translate the universe into theological or scriptural modes of thought. This enterprise too is common, and one that irritates scientists as much as number two above irritates religious people.

What does Thomas Berry do? He wonders over the revelations of the universe. He wonders over the human. He faces the great discoveries of tectonic movements, of spacetime curvature, of stellar nucleosynthesis and he asks himself: "What does all this reveal about the role of the human species in the universe?"

Thomas Berry teaches scientists about the universe.

Here's the great surprise: Thomas Berry teaches scientists about the universe. I would say that this is why a scientist encountering his work for the first time grows

ecstatic, as if in the rush of an illuminating event. Thomas Berry provides not psychological insight, nor moralistic guidance, not mystical or contemplative teaching about withdrawa1 and detachment from the world, but knowledge and insight into the nature of the universe. This is such a shock, such a disorienting surprise, a scientist can hardly believe it is actually occurring. One has become so accustomed to assuming the universe must always be left out of religious thinking.

I think more should be said here, or misunderstanding will be inevitable. It is true that most or all theologians speak of "reality" or the "world" or "life." But scientists automatically ask these questions: Do theologians have a great deal to say about life if they are unaware of the dynamics of cell division, of genetic language, of the elegance of photosynthesis? Should a person use the word "life" if he or she knows little or nothing of the actual events comprising the four billion year epic of life on this planet? From a scientist's point of view, the theological use of the word "life" appears to be something "spiritual" or "psychological"; something perhaps germane to moral statements, but something disconnected from the structures of the actual world as it is given to us in our most basic investigations.

Here is Thomas Berry's point of view: Theologians, when they speak of "life" in a moral, spiritual, or psychological sense only, inevitably emasculate their own theology. Thomas Berry criticizes the theological enterprise today for its timidity. The scripture "I am the way, the truth and the life" has been crippled to mean little or nothing at all, precisely because theologians, when they say "life," they do not mean "biological life." It is to overcome this parochial attitude that Thomas Berry offers a comprehensive interpretation of the universe, one that goes beyond both science and theology by themselves.

I have said scientists learn about the universe from Thomas Berry, and this accounts for their enthusiasm for his thinking. But, this is not all. There is something else that is vital. Scientists recognize Thomas Berry as a brother, as one who has discovered and been stunned by the beauty of the universe. One who is just as amazed as they are by the universe. This alone enables a scientist to value Thomas Berry's intuitions. For here is a person—even a religious personality—who is as devoted as they are to the beauty that suffuses the world.

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I think it is important to say something about how rare this is, and how essential. It explains both Thomas Berry's accomplishment, and the inadequacy of so much theology of recent centuries. Scientists have learned it is not wise to speak to religious people about one's devotion to the universe or nature. What happens generally is that theological, clerical, or spiritual people, without thinking at all, belittle such devotion. How do they do this? By transforming the great majesty of what a scientist is trying to express into side comments on this or that scriptural text, or this or that theological doctrine. They listen to this excitement unaware they are listening within a theological orientation that inevitably leads them to discount it all as secondary.

Why do scientists have little interest in theologians? When you fall in love, you bring your spouse home, beaming with excitement; but if your parents disapprove, if they are disappointed, if they are apathetic or if they engage in psychological assault, you eventually learn to stop dropping by the old homestead. Scientists dropped out of religion not primarily because theologians and preachers had nothing interesting to say about the universe. They stopped sitting in the pews because the preachers kept explaining to them that their passions and interests, their meaning, their central devotions in life, were unimportant . . . or irrelevant . . . or footnotes to the real truth . . . or regrettable, secondary, and a waste of talent.

For Thomas Berry the universe is primary. He enters with no distracting agenda drawn from conciliar documents. He does not attempt to see the universe as a gloss on the Bible. From his point of view, to attempt to cram this stupendous universe into categories of thought fit for scriptural studies or systematic theology is to lose the very magnificence that has stunned us in the first place. Our encounter with the universe must be primary, for the universe is primary. In his view, the stars, the mountain ranges and the clusters of galaxies demand and are worthy of our deepest regard. Our attention must be turned to the vast drama and majesty of the universe if we are to discover our role at the species level of life.

I would like to indicate here some of the main features of Thomas Berry's cosmology. I will jot down a few sentences on ideas he has spent decades pondering. At best I will give a dim flavor of the whole vision he

offers. Anyone interested will have to examine his essays for a fuller consideration of his ideas.

A. The Great Achievement of the Scientific Era Is the Cosmic Creation Story

It's interesting to me that in my graduate courses in mathematics and physics, in my conversations with scientists, and in my readings in the philosophy of science, I never once learned the full significance of what we scientists were doing. Embroiled in the work, most scientists did not have the freedom to recognize the cosmic story as their aim. There were some thinkers, of course, who did. Albert Einstein explained that science was essentially "the recapitulation, in the conceptual realm, of the universe."

But Thomas Berry goes beyond Einstein in emphasizing the cultural role this "recapitulation of the universe" will play. It required someone with knowledge of the world's cultures back to the tribal period to recognize the transcultural and trans-scientific meaning of this story of the universe that burst into being some billions of years ago, that developed in complexity and form throughout the galactic, planetary, life and human stages. Though scientific knowledge has put these lethal weapons in our hands, it has also provided the Earth with the first common story of our origins and development. The scientific enterprise has eventuated in a creation myth that offers all humans a deeper realization of our bondedness, our profound communion not only within our species, but throughout the living and non-living universe.

B. The New Story Is an Empirically Based Story

Precisely because this story of the universe comes to us through our investigations beginning with our eyes and ears and body can we speak of a transcultural creation story. Members of every continent are involved in discovering and articulating this story. Members of every major religious tradition are involved in its telling.

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What other story could possibly have served humanity as a whole? How else could members of Hinduism and Christianity and Native American Traditions come to agree on the ultimate origin and development of the planet, or the life forms, or the stars but through a direct experience of

these realities? So long as humans insist on their own scriptural stories, they only emphasize their differences. But with a story that begins with the wind and sunlight and the continental movements as they reveal themselves through our direct investigations, we have the promise of a convincing story, one around which we can work out a common reverence and a common set of values.

C. We Live in a Time-Developmental Universe

The larger meaning of time has been discovered in the last couple of centuries. It is difficult to estimate the full significance of this fact. The universe in which we live and think is vastly different from the spatial or cyclical universes of Plato, Aristotle, Thomas Aquinas, or Shankara, for instance. For all previous humans, the universe was something set. Either all the species came into existence at the same time, or else they emerged as spring and summer emerge, in a cyclical pattern. In such worldviews, time is seen either as related to decay, or as unreal, a wheel of delusion.

In our new vision, time's dynamics reveal themselves in an ongoing creativity. Only through the most prolonged meditation on the universe could this creative dimension of developmental time be appreciated. Eventually it was recognized that species were not set from the beginning, but were created throughout time. Eventually it was realized that the Earth had not simply been here from the beginning, but was involved in a vast development stretching back billions of years. The awareness completed itself when physicists discovered that the universe as a whole was a self-emergent, dynamic, one-time energy event caught up in its own inner developments through time.

The insights of all thinkers previous to our time are, to varying degrees, conditioned by spatial cosmologies, all of which have been surpassed. Thomas Berry's insistence is that until we begin our thinking in this time-developmental universe, we condemn all our thoughts to conceptual frameworks in the midst of collapse. How convincing are theologies that are framed by worldviews no longer regarded as real? In insisting that we begin our thinking within a time-developmental universe, Thomas Berry continues an intellectual tradition best represented by Thomas Aquinas, when he set out to learn the philosophy of Aristotle. This tradition insists that our insights must be framed in our best knowledge of the universe. Thomas Aquinas had his Aristotle; Thomas Berry has his Newton, Darwin, Lyell, and Einstein.

D. Everything in the Universe Is Genetically Related

Humans and beasts are kin. They organize themselves chemically and biologically in nearly indistinguishable patterns of intelligent activity. They speak the same genetic language. And all things, whether living or not, are descendents of the supernova explosion. All that exists has been shaped by the same energy that erupted into the universe at the primeval fireball.

No tribal myth, no matter how wild, ever imagined a more profound relationship connecting all things in an internal way right from the beginning of time. All thinking must begin with this cosmic, genetic relatedness.

E. The Universe Is Integral with Itself

We have already mentioned the intrinsic connection between the human body and the star that created the elements of the human body five billion years ago. We can remember as well the cosmic background radiations that communicate events fourteen billion years ago to humans alert to their intelligibility today. These are macrophase examples of what is most obvious to us today in our new ecological awareness—we live in an interconnected universe. Every being on Earth is implicated in the functioning of the Earth as a whole; and the Earth as a whole is intrinsic to the functioning of any particular life system.

We have discovered that this integral nature of the universe extends back to the beginning of time. The conditions and dynamics of the fireball were such as to enable life to develop within the universe. We can even speak of the way in which the human face is there in the structures of the fireball, for if the elegance of the fireball were changed substantially life and human presence would be eliminated. In this cosmological vision, life is more than a quality characterizing certain events on a particular planet. Life is a principle inherent in the primordial structures of the universe.

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F. Humanity Is a Celebratory Species

Rather than seeing human self-awareness as simply an addition to the planet, Thomas Berry describes a planet that becomes aware of itself through

the human element. In this vision, the human emergence is an activation of a deep dimension of the universe. It is true, of course, that the human is an individual being on the planet; but it is equally true that the human person is a mode of the planetary process as a whole.

From this perspective, humans are activities of the Earth. Scientists and artists are not simply exercising their private talents and rational capacities when they set about their work. Rather, in these very activities, the Earth is simultaneously revealing and discovering itself. This Earth must be understood as an ongoing developmental activity that has eventuated in mountain ranges and humans and ants. The earthquake and the Mozart symphony are both activities of Earth – not of Mars, not of Jupiter. They are processes grown out of the fundamental dynamism of this planet.

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The universe as a whole is a great celebration of that ultimate mystery whence it came. But the human species is especially created for celebration; for in human awareness, the universe turns back on itself in admiration and joy.

G. The Three Basic Laws of the Universe are Differentiation, Subjectivity, and Communion.

The universe is differentiated. It comes to us in articulated energy constellations, not as a simple homogeneous material. The more closely we examine anything, the more clearly do we appreciate its unique differentiation from everything else that exists in the universe.

The universe consists of acting subjects. After our penetration into the deepest reaches of matter, we realized that there was no such thing as an inert thing; there was no matter that was not simultaneously churning with activity. An atom is a centered self-organizing entity. The Earth is a centered self-organizing entity—so too the virus, the galaxy, and the forest. The Universe consists of subjects.

The universe is bound together in communion, each thing with all the rest. The gravitational bond unites all the galaxies; the electromagnetic interaction binds all the molecules; the genetic information connects all the

generations of the ancestral tree of life. We live in interwoven layers of bondedness.

The planet as a whole is in a traumatized state. This is not the first time. Throughout the history of these disastrous crisis points, there have been stupendous creative achievements enabling the planet as a whole to move from misery to health. The invention of photosynthesis might be the most spectacular. In my thinking, the creativity breaking through Thomas Berry represents that vision of the world that will enable the Earth to move toward health.