NATIONAL CATHOLIC REPORTER
Published on *National Catholic Reporter* (https://www.ncronline.org)

Religious implications of recent discoveries in science

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Galileo was hammered by the Catholic church for endorsing the Copernican theory that the Earth revolved around the Sun, putting the Sun and not the Earth at the center of the solar system. We were awakening to a new expansive view of the universe, although it would take almost another 400 years before we would break the firm grip of ecclesiastical control and scientific reductionism.

In 1650, the noted Biblical scholar, Archbishop James Ussher calculated that the creation of the world took place on Oct. 23rd, 4004 BC, and that the end of the world would occur at noon on Oct 23rd., 1997. That became standard catechetical teaching in many parts of the Christian world up to about 1960.

Meanwhile, a mind shift had happened in the early 1900s with Einstein?s theories of relativity and the formulation of the quantum theory. It was no longer the Earth that engaged the searching mind but the universe at large, now so complex and mysterious that talk about its beginning or end seemed short-sighted and even irrelevant.

With the Hubble discoveries of the late 1920s and the pioneering work of the Belgian priest-astronomer, Georges Lemaitre, the seeds were sown for the leading theory of 20th.century science: The Big Bang. The term was coined by Fred Hoyle in the 1940s but only became a formal theory after the discovery of the cosmic background radiation by Arno Penzias and Robert Wilson in 1963. From a single point of energy, 13-15 billion years ago, everything we know in creation today began to unfold, including Planet Earth which first evolved about 4.0 billion years ago.

That which gave us the evidence for the Big Bang threw up other imponderables, particularly the discovery of powerful gravity in the distant horizons of time-space. The strength of the gravity waves suggests that great quantities of matter exist out there somewhere. Its nature and location we know nothing about as yet, but scientists are forced to the bewildering conclusion that the observable world comprises at most 10% of the known universe, which means we know nothing about 90% of the created universe.

It has taken discoveries of this nature to challenge the arrogance with which we humans study and propose theories about the created universe. The real issue of course is neither discovery nor study, but power. We feel we have the right to be in control, absolute control and this is still the driving force behind a great deal of modern science, and sadly behind a good deal of religious dogmatism as well.

Finally we come to the real big stuff: the multiverse. The story can be traced back to 1957 when an American doctoral student, Hugh Everett (supervised by the Princeton professor, John A. Wheeler), proposed the possible existence of several rather than one universe. His argument is based on mathematical equations derived from quantum theory which also leads to the notion that the universe is self-creating and poised for indefinite growth and expansion.

In 1981, the idea of a multiverse got an added boost from Alan Guth?s inflationary theory. Quantum theory postulates the existence of an original empty space (hence, the quantum vacuum), consisting of energy movements (fluctuations) from which all matter is shaped and formed. Guth proposes that the fluctuations initially manifest like bubbles in a foam, and shortly after the big bang, these bubbles expanded (inflated) each becoming a mini-universe in its own right. A great deal of experimental evidence supports this proposal. And it is strongly endorsed by leading scientists of our time including Andri Linde (Moscow & Stanford), Marin Rees (Cambridge), Brian Green (Columbia), Paul Davies (Sydney).

I find the adoption of fractal geometry particularly inspiring: ?Recent versions of inflationary theory assert that instead of being a ball of fire, the universe is a huge growing fractal.? (Andrei Linde). Fractals are revolutionary new mathematical image-like concepts, in which we find repeated patterns buried deeper and deeper (a bit like a Russian doll). The more we unravel the observable pattern (through computer simulations) the more we find it repeated in the subsistent layers. It is a wonderful exposition of the leading principle of the new physics: the whole is greater than the sum of the parts, yet the whole is contained in each part. (for more on fractals see my book, Quantum Theology, 2004, pp.51-53).

How do we relate these discoveries to the realm of faith, Christian or otherwise? I offer a few thoughts.

1. Long before religion ever evolved, humans believed that the divine was intimately involved in creation. All the religions support this idea. Is creation then a kind of primary revelation of God to us? If so, we need to attend carefully to how we understand creation.

2. Our human tendency especially in the past 2000 years is to reduce creation to a human artifact, one we can use and subdue to our advantage; all the major religions, to one degree or another, endorse this orientation. Consequently, we can no longer assume that the religious understandings of creation are in any way adequate, spiritually or theologically.

3. Although scientists also embrace the addictive preoccupation with power and control, many of their intuitions into cosmic and planetary life may be much more spiritually informed now than the insights of formalized religions. On the other hand, several of these scientific insights are congruent with those of great mystics from all the religious traditions of humankind.

4. Christian theologians exhibit strong concern about the notion of creatio ex nihilo (creation from nothing). They wish to retain this belief in order to safeguard divine initiative, and presumably their understanding of divine power. Today, we understand the primordial nothingness as a substratum of seething creativity. Perhaps, for God, the notion of a beginning point is of no significance. Might it not be another anthropocentric fascination!

5. Scriptures of all traditions allude to the end of the world. It is very explicit in the Christian and Muslim traditions. Contemporary science is rapidly moving towards the notion of a world without beginning or end. Might this not be a stronger indicator of truth, rather than the anti-world stance that underpins some of the major religions?

6. The big fear ? scientifically and religiously ? generated by many of these new ideas concerns our human

place and role in the plan of creation. It is abundantly clear that we are not in charge, that we are not the ultimate species in any sense, that we rely on many other aspects of creation to survive on earth, that we are one small organism among so many others, and disturbingly, not as wise as we would like to think. So what is our purpose?

7. Of all the responses to this question the one I find most challenging and inspiring is the proposal that we are creation becoming aware of itself. Our unique vocation ? and contribution to creation ? is to enhance the growth in consciousness. An awesome responsibility! (Perhaps, this is what all the great mystics were, and are, about!)

8. Theologically, the crucial issue is around the notion of revelation. If the divine has been disclosing creativity and meaning in the entire story of creation, throughout these billions of years, why restrict the empowerment of the divine to religiously-validated time and culture boundaries? Somehow, it does not seem to make sense any more!

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