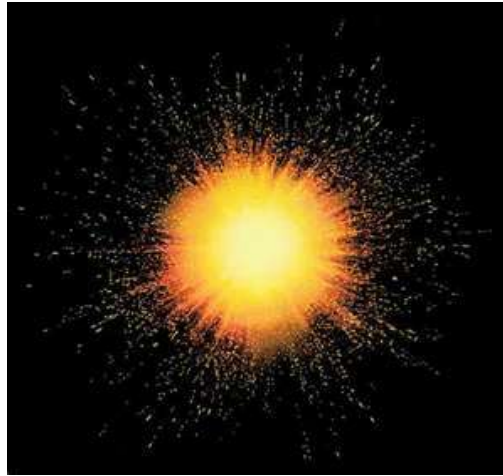


## Religion and Science: The Emerging Relationship Part VI



In the last article I discussed the discovery that we exist in an expanding universe; the result of the *Big Bang*. This theory has contributed to a renewal of the *cosmological proof of the existence of God*, as hinted at in the previous articles in this series. While science cannot speak to this issue using the methods of science, it is clear that modern discovery is provoking the question about God among some scientists who have turned to philosophy and theology for guidance. Other discoveries about the universe have continued to fuel this discussion

Modern science has discovered that there exists a balance of forces in the universe that are so fine that any variation would have meant a very different type of universe—or none at all! In the words of scientist Stephen Hawking:

*If the rate of expansion one second after the Big Bang had been smaller by even one part in a hundred thousand million million it would have recollapsed before it reached its present size. 1*

There are other intriguing aspects of the universe as well. For instance, if the strong nuclear force were even slightly weaker we would only have hydrogen in the universe. If it were slightly stronger, all the hydrogen would have been converted to helium.

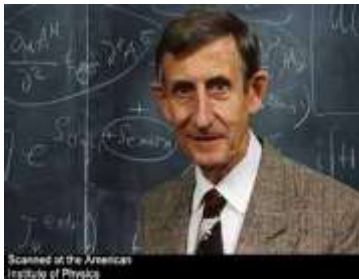
*In either case, stable stars and compounds such as water could not have been formed. Again, the nuclear force is only barely sufficient for carbon to form; yet if it had been slightly stronger, the carbon would all have been converted to oxygen. Particular elements, such as carbon have many other special properties that are crucial to the later development of organic life as we know it. 2*

Another extraordinary condition of the universe is the *particle/anti-particle ratio*. That is, for every billion anti-protons in the early universe, there were one billion and one protons. The billion pairs annihilated each other to produce radiation, with just one proton per billion left over. A greater or smaller number of survivors or none at all would have made our universe impossible.

*The odds against a universe like ours emerging out of something like the Big Bang are enormous. I think there are clearly religious implications. 3*

The physicist Freeman Dyson writes:

*The Argument from Design, gives a number of examples of 'numerical accidents' that seem to conspire to make the universe habitable...The more I examine the universe and the details of its architecture, the more evidence I find that the universe is some sense must have known we were coming. 4*



(Freeman Dyson)

While these discoveries are compelling and seem to point to the possibility of a Grand Designer, theologians are cautious about using these discoveries to argue for the existence of God to avoid the *God of the gaps*. That is using God to explain something about the natural world that we do not have an explanation for at this time. However, the discoveries in science and the discovery of quantum mechanics are provoking questions about what is the nature of reality, or more specifically, observable and measurable reality. Even the reality of matter, which classical physics thought it understood, is undergoing a new scientific discussion because of the finding that all matter is 99.99% empty space. And so it is the discoveries of modern science that are stimulating the question of God, not the lack of explanation! They are suggestive in their implications but still only suggestive, not knock down proof.

We are an integral part of creation; at least this is the finding of quantum physics. We are also the only creatures that are able to probe the mystery of creation that leads to questions about *who* created the Universe. Scientists continue to search for an answer to the mystery of the Universe. Many scientists are at present trying to formulate a Grand Unified Theory for the Universe, motivated by the conviction that the cosmos is rationally intelligible. For the religious believer, if God is the source of reason, the world is orderly; but if God is also free, then the world did not have to come into being and be orderly. Furthermore, such a God as ours makes possible the reality of novelty and spontaneous creation that we see reflected in *quantum mechanics*. In the Universe there

exists dependability and novelty; and laws and probability that govern the observable Universe. The physicist, James Trefil sees it this way:

*But who created these laws?...Who made the laws of logic?...No matter how far the boundaries are pushed back, there will always be room for both religious faith and a religious interpretation of the physical world. For myself, I feel much more comfortable with the concept of God who is clever enough to devise the laws of physics that make the existence of our marvelous universe inevitable...5*

In his acclaimed book, *Thank God for Evolution*, Michael Dowd explains that the Universe can be trusted to move in five directions:

- Greater diversity over time.
- Greater complexity.
- Greater awareness as living beings have evolved over time.
- Greater speed of change—creative breakthroughs happening more quickly than in prior times.
- Greater intimacy with itself as reflected in the creatures 6

This human capacity to probe and understand some of the mysteries of the Universe was bound to lead to questions concerning where human beings fit in the scheme of the Universe and how human beings would use the information of discovery. When it came to scientific research and development it led to the question, *because we can do something, ought we to do it?* While we will explore the ethical dimension of scientific research in greater detail later, it is appropriate that we initiate some level of discussion in light of the increasing dialogue between religion and science.

On the morning of July 16, 1945, the world would be changed forever. Sometime after 5:30 a.m., in a section of the New Mexico desert called *the journey of death*, the darkness of the early morning was illuminated with an incandescence so bright that twenty miles away a young girl blind from birth saw the light. This was the Trinity test of the first atomic bomb, ushering in the most dangerous period in human history.



The nuclear force that was summoned up by the scientists and politicians of our age reminds one of the *sorcerer's apprentice*, whose summoning up forces on so grand a scale, found himself unable to control them. It is the irony of our time that those who control this power are in the most peril. Such a situation has helped to lead to a very important discussion among scientists, ethicists and policymakers about the nature and limits of scientific research and development.

It is typical of our time to confuse new forms of research and invention as progress. Can one really say that humanity has always progressed as a result of new scientific invention and technology? It is a known fact that technology often carries with it a *dual character*. Technology can bring great benefits to the human race, but it can also generate new and often unforeseen problems. For instance, the invention of Zyklon B gas was to be used for the extermination of vermin in German cities. However, it eventually became one of the key ingredients for the *Nazi Final Solution to the Jewish Problem* in the killing factories of the Third Reich. Also, in March of 1983, President Ronald Reagan announced the Strategic Defense Initiative to help render nuclear weapons *impotent and obsolete*. An admirable moral goal to be sure! However, it relied on a technical solution to a moral and political problem, but also contained within itself the possibility of making nuclear war more not less possible. It was feared that if the U.S. were to get a shield from nuclear attack, even if it was only 50% effective, it would make the U.S. nuclear sword more powerful, especially in the light of the new generations of nuclear weapons and their delivery systems that were extremely accurate and powerful that would be targeted on an opponents nuclear weapons. Many felt that this could generate enormous pressures on a U.S. opponent to use their weapons or risk losing them. As a consequence, many scientists rejected working on SDI or accepting precious funding dollars to do research for SDI.

Modern science has been both a blessing and a curse for the human race. On the one hand, never in the history of the human race have so many people lived with such a high standard of living and good health care. On the other hand, never has there been a time in history when the destruction of the planet rests in the hands of a few people! In the words of scientist/theologian, Keith Ward:

*Science has enormously increased our understanding of nature, but it is not our liberator from hatred and greed. It can be used either for good or evil. It can increase human health and welfare, or it can destroy the world. 7*

In all human research and invention there is risk. We cannot always foresee the consequences of our actions. That is why we need each other. We were not created as *atomistic* creatures, separated in a fantasy world of separateness. We are by our very constitution 100% personal and 100% social creatures involved in an interdependent relationship with God, others and the world. We rely on the counsel, dialogue and accountability of and to others to act wisely, morally and humanly. And so it is clear that there is a fundamental interdependence to all living things and the universe around us. So it is clear that what we do to others and the creation we do to ourselves. The U.S. Catholic Bishops, in their letter, *Renewing the Earth, 1991*, state:

*The web of life is one. Our mistreatment of the natural world diminishes our own dignity and sacredness, not only because we are destroying resources that future generations of humans need, but because we are engaging in actions that contradict what it means to be human. Our tradition calls us to protect life and the human person, and it is increasingly clear that this task cannot be separated from the care and defense of all creation.*

The ethical concerns surrounding scientific research and invention reveal the profound questions and consequences summoned up by scientific research. These concerns arise from the fact that life and the quality of life on this planet have been, are, and will be affected by scientific research, discovery, and technical invention. This situation continues to impose itself on our society as we continue to grapple with the moral challenges of stem cell research, cloning, technology of robotics as applied to military applications, proliferation of nuclear weapons and other forms of weapons of mass destruction, and the more just distribution of the benefits of technology to all people.

## Notes

1 Ian Barbour, *Religion In An Age of Science*, (San Francisco: Harper Publishing, 1990), p.13

2 Barbour, p. 128

3 Freeman Dyson, *Disturbing the Universe*, (New York: Harper and Row, 1979), p. 250

4 Barbour, p. 141

5 John Trefil, *Moment of Creation* (New York: Collier Books, 1983), p.233

6 Michael Dowd, *Thank God for Evolution: How the Marriage of Science and Religion Will Transform Your Life and World*, (New York: Viking Press, 2007), p. 51

7 Keith Ward, *The Big Questions in Science and Religion* (West Conshohocken, PA: Templeton Press, 2008), p. 218.

Deacon Bob Pallotti