Science and Faith in Dialogue

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St. Paul reminds us that there are many gifts but the same Spirit. We should value all gifts equally. One person’s gift is not superior to another one’s. I have been richly blessed in life with gifts of faith and family, friendship and good health. Additionally I have greatly enjoyed the academic life, its potential for exploring ideas, pursuing research, and influencing the minds of young people. My chosen field of research has been dinosaur paleontology, a topic which has taken me to numerous countries around the globe, most recently and most intensively to China.

As a cradle Catholic who has always practiced his faith, I had never specifically tried to reconcile science and faith until I was explicitly challenged to do so, which occurred some years into my academic teaching career at the University of Pennsylvania. The date was Dec. 15, 1988. The occasion was a provocative scientific seminar by Dr. Will Provine, an evolutionary biologist at Cornell University whose lecture was entitled “The evolution of human morality.” It turned out to be his atheist manifesto. “Modern evolutionary biology shows us,” he intoned, “that there is no God, there is no soul, there is no life after death; indeed, there is no such thing as Free Will. Each of us makes hundreds of decisions every day, but these are the result of either our genes or our environment. There is nothing else.” In case anybody missed the message, he continued: “a scientist who professes to believe in God is hypocrite. You must check your brains at the back of the church.” He also opined that not more than a handful of evolutionary biologists believed in God.

I was stunned and horrified by this blunt attack on all that I cherished, and I was initially without the words or the vocabulary for rebuttal. Now of course I was not sufficiently naïve to think there are not atheist scientists about, but this was the first time I had encountered the argument that science requires atheism. There followed in my life a long period of searching for and finding similar travelers. Far from being alone, as Provine clearly intended me to feel, I succeeded in finding a rich community of scientists, including astronomers, physicists, chemists, biologists and ecologists who are also confessed and practicing Christians. Most happily, I connected with an important group of Jesuit and lay scientists like myself who meet annually at Loyola University of Maryland in Baltimore every year to celebrate our shared faith and to discuss various topics of science and faith. In 1998 I co-founded the Philadelphia Center for Religion and Science and served as its first president, until it morphed three years later into the Metanexus Institute for Religion and Science. Currently I serve on the advisory council of the Institute for Religion and Science at Chestnut Hill College. On my own campus of the University of Pennsylvania I have been named a senior fellow of the fledgling Collegium Institute for Catholic thought and Culture, and a senior fellow in the Program for Research on Religion in an Urban Civil Society in the Fox Leadership Center of the University of Pennsylvania School of Arts and Science. All of these appointments lead me a tad bewildered. I am just this guy who takes his science, his faith and his family seriously, and who sees them all as integral parts of a harmonious whole. For me, doing science is an act of worship, exploring the richness of God’s creation.
The Penn Newman Center has been central to my spiritual life for many years. I am a charter member of a weekly discussion group, the Circle of St. Bede, begun in 1988, and I also participate in weekly scripture study there as well. I have given talks on science and faith both on campus and away from campus for a number of years. I “came out” as a Christian believer in an essay in a scientific newsletter in 1996, and spoke on the subject to a national meeting of paleontologists in Phoenix in 2005 (a talk that has generated more positive discussion and correspondence than perhaps any other talk I have ever given). I try not to hide my lamp under a basket.

I am a geologist, a paleontologist, a veterinary gross anatomist and an evolutionary biologist. I am not a Biblical literalist. As Galileo wisely observed, the Bible contains such truths as are necessary for our salvation. God leaves the rest of knowledge for us to gain with the gifts He has given us. We do not praise God with our ignorance, and we are not misled when we use our gifts humbly and honestly to explore Nature. As Psalm 33 tells us, “The works of the Lord are trustworthy.” St. Paul’s letter to the Romans tells us that we can know the Creator through the works of Creation. As a scientist I say “Amen!” I am not a Biblical literalist. I do not believe that the account of Creation given in Genesis 1 and Genesis 2 are scientific accounts of creation. Instead they convey the message that God is the Lord of all Creation, and that the sun, the moon, the stars, the earth and all its components are parts of that Creation. This stands in contrast to the pantheistic accounts of the Babylonians and other neighboring peoples that accorded divine status to these same entities. I distance myself from Biblical literalists because they reject the idea of an old earth, reckoned by science today to be 4.6 billion years old. They instead rely on the Bible as a scientific account of the age of the Earth and the means by which God created it. The Bible is not regarded as the justification for any other empirical science. Why should it be regarded as the basis for biology alone? Why not for chemistry? Engineering? Astronomy? Meteorology? The Christian weather report for tomorrow? I think not! Galileo pointed out that the Bible mentions only one planet – Venus. As Augustine pointed out, the purpose of the Bible is to tell us how to go to heaven, not how the heavens go. For Aquinas, God operates through secondary causes, which we call the “laws” of nature. Thus God was so clever that He created a universe that created itself. Now THAT is intelligent!

As a geologist, I bring a perspective of Earth History to the current problem of global warming. To be blunt, I think it is a non-issue. The issue has been shamefully manipulated by climate scientists, climate advisers and the press. I fear that our Holy Father has listened to poor scientific advice. It may well be that climate is presently warming. As the saying goes, if you don’t like the weather, wait a minute. Who can remember that less than 40 years ago climatologists were predicting the imminent beginning of the next Ice Age. What appears to be catastrophic global warming may well turn around into cooling within the next few decades. Climate is never static for long. The controls of climate are not well understood, the science is most definitely NOT settled, and climate models are laden with uncertainty, although congressional science advisers and failed presidential candidates are loathe to admit this. Models are predictions. Scientists have a very poor record of predicting the future. We are not currently in a time of unprecedented warmth. Two of the warmest years on record were AD 1102 and AD 900, during the Medieval Warm Period. During this time, southern Greenland was indeed green and Vineland (Labrador) was verdant. Although there is some melting in Greenland today especially at the edges of that
landmass, there is nothing like the plant growth of a thousand years ago. The Medieval Warm Period was followed by the Little Ice Age, beginning roughly in 1300 and extending to the 19th century. This time interval saw plagues and famine, a miserable time in human history. The coldest temperatures of the last 2000 years occurred in the late 1500s. People complain all the time about miserable winters, but yet are opposed to warming. Is there possibly an inconsistency there?

When we take a long view of things we discover that the Ice Age that began 2.5 million years ago is not over. We find that ice advanced every hundred thousand years, ravaging northern lands for 70 or 80,000 years, and then melting back. The last ice retreat began about 20,000 years ago. At that time large volumes of water were locked up in glaciers and the oceans were lower 400 feet lower than today. The coastline of New Jersey was 75 miles out onto the Continental Shelf. Since that time, the glaciers have been melting, sea level rising, and the New Jersey coastline moving westward. This is a strictly natural process that was not instigated by humans and which will continue regardless of what draconian measures we may choose to take.

The fact is, ice melts. Having polar ice caps is not normal in earth history. Perhaps only 15% of earth history is characterized by the existence of glaciers. The earth is colder today than it has been since before the time of the dinosaurs. If future humans are spared the scourge of advancing glaciers perhaps we should rejoice. But the geological prediction is that within 80,000 years and possibly much sooner the next ice advance will be underway. Is it not human arrogance to think that we can control nature? The Global Warming Alarmists are perhaps building the Tower of Babel for the modern generation, our attempt to show ourselves equal to God. Maybe we should show a little trust in God that all will be well.

Are we not pouring carbon dioxide (CO₂) into the atmosphere? Yes we are. But the levels during the time of the dinosaurs were ten times higher than today. There is three times as much carbon in the soil as there is in the air. There is 60 times more carbon in the oceans than in the air. Our efforts to control CO₂ by controlling emissions are puny in comparison with natural sources of CO₂ such as volcanic emissions and plant decomposition. Water vapor, which we cannot control, is ten times more important as a global warming gas. In fact, if we remove the human component, the atmosphere may be in negative CO₂ balance, which historically correlates with falling temperatures. Humans may be holding off the next Ice Age!

It is prudent for each of us to do his or her part to conserve finite resources and walk (not drive!) with the smallest carbon footprint that we can (I write these words conscious that I am jetting across the sky at 600 mph leaving a large carbon trail behind me!). But God has given us the resources of the Earth to use, not to bury our talent in the ground. God has also given us the cleverness and resourcefulness to solve our problems as they arise. Surely our faithful God will not fail us now.