

Response to Mary Daly on Geocentrism and the “Gravity” Issue

Mary Daly: Saturday, September 02, 2006. [The New Geocentrism](#). This is the first of a series of posts offered by [Mary Daly](#) and ScienceMom arguing against [a new form of geocentrism](#) being promoted by some Catholics.

The New Geocentrism: To embrace geocentrism is to deny gravity. If one said, "I don't believe in gravity; the Hebrews had no word for it and we don't need one either," then the fundamentalism of the position would be clear, but all this quoting of scientists (out of context) will be confusing to those with a weak science background. I'm afraid there are too many of those. How does geocentrism relate to gravity? It's not too difficult to see, but we need to back up for a moment.

What is a center? It's what things go around, let's say.

But when physicists since Einstein say that there is no proof of what's the center, they mean something quite different from "the Bible is as good a physics text as any." What they mean is that the math, the equations that describe motions in the universe, can be written from any perspective.

This is absolutely true, and includes not just the perspective of the Earth and of the Sun, but of any comet, of any asteroid, and, for that matter, the tip of the nose of any ballerina of your choosing. If the new generation of geocentrists were to acknowledge that the centrality of the earth, in universe motions, is just about on a level with the centrality of a ballerina's nose, then people would understand that his position has no serious merit and provides no opportunity for an advance in our understanding of the actual constitution of the universe.

R. Sungenis: What Mary is trying to say is, since Einstein's Relativity allowed anything to be the center of the universe (since the math could be formulated such that one could make anything the center), then the claims of the geocentrist that Earth could be in the center are no more valid than saying Betelgeuse or your mother's kitchen table is in the center. Not quite. Geocentrists merely start from Einstein's Relativity to show people like Mary Daly that, based on the tenets of modern science, it is not impossible for the Earth to be the center, which was the fallacious idea that Galileo and Newton were purveying before Mach and Einstein came along to say no to them. Hence, after we clear the air of this bias against geocentrism, we then show by the scientific evidence that the Earth is at or near the center of the universe (e.g., evidence from the 2001 Wilkinson Microwave Anisotropy Probe (WMAP) on the Cosmic Microwave Background Radiation, light polarization, gamma ray bursts, quasar distribution, the 2005 Sloan Digital Sky Survey of galaxy distribution in concentric circles around the earth, and other such evidence) and that there has never been any scientific proof that the Earth is moving in space and plenty of evidence that it is not moving (e.g., Airy's Failure, Michelson-Morley experiment, Sagnac, Michelson-Gale, and other such evidence).

Mary Daly: That is the situation. True, when you are engaged in exclusively earth-centered navigation, when you are a ship, for example, it is simplest to talk about the sun rising and setting, as if we were in the center. This is not a peculiar observation; and it is true that even men who are certain that the Sun is in the center may write equations about such motions as if the earth were the center and the Sun in motion

above it. I once had my hands on a book that spoke of the earth as center, and one of its evidences was that modern navigators use such equations, so that is why I mention it here.

When you plan travel to a planet such as Pluto, however, (or planetoid or whatever it's to be called), you enlarge the frame of reference, and you need to put the Sun in the center. If you wanted to go to the Andromeda Galaxy, 2.5 million light years away, the position of the Sun would quickly become irrelevant, and the centers of your equations would, I suppose, involve many things, perhaps including the centers of each of the galaxies in turn.

R. Sungenis: Well, those who say that the Earth is in the center because we use geocentrism for navigation are wrong, so it is good for Mary to point this out. NASA and the JPL, for example, can use the Earth Centered Inertial Frame or the Solar Barycentric Frame, whichever one is easier.

Mary Daly: So what is true? Is there such a thing as truth? I feel quite strongly that any argument which boils down to Pilate's question needs an intense review.

What is Gravity? It was Galileo who asked the basic question: What is gravity? Easy! It's what makes things fall. No, that is just the definition of gravity. How does it make things fall? What is it, really? And then he made this incredible statement: if you can tell me why/how a spoon falls to the ground, I will tell you why/how the Moon goes about the Earth. He actually understood that these were the same phenomena. This was an amazing insight. It is from Galileo specifically that we made the incredible leap of understanding that the physics in the sky is the same as the physics on the ground. New Idea. Very New. Very important, and it was from Galileo, specifically, though Newton generally gets the credit.

Newton built on this specific passage from Galileo. When he said an apple fell on his head, he was sitting under a tree reading Galileo. This is almost literally true. He read Galileo and he made the equations that describe both the spoon and the Moon, and they describe a jillion other things. So here's the point.

Once Galileo made that statement, and once Newton made those equations for gravity, we were no longer engaged in relativity: there was a reason for the sun to be in the center. It's bigger. Or, I should say, it's heavier. It's pulling us in and the balance between it pulling us in and us traveling in a straight line East through space is the curve of our orbit.

If the Sun goes around the earth, then gravity is not the reason for our relative motions; indeed gravity does not function at all between us. Nor does gravity function in the relative motions of any of the planets. It functions on my spoon, but not on our Moon, which operates according to another set of physical laws.

This disorderly notion is the reason that a serious physicist will find the position of Sungenis hilarious or horrible, but will not take it seriously for a moment because he can't do a jot of celestial physics if he drops gravity.

R. Sungenis: Oh Mary, Mary, quite contrary, how does your gravity grow? I see that it does not grow in the garden of modern science, since modern science would never support your objection. Geocentrism depends on gravity just as much as you do. The problem is that you didn't explain what Newton really said. He didn't say that the smaller revolved around the larger. He said that both bodies revolve around the center of mass. As such, if we have a spherically symmetric universe that rotates (which is allowed by

Einstein's physics and math), then that universe will have a center of mass around which the universe will rotate. Anything could occupy that center of mass (e.g., Betelgeuse, your mother's kitchen table, and, as a matter of fact, even the Earth). And when it does so, Newton's laws say that it won't move. What Mary needs to do is stop confining Newton's laws to our solar system. She needs to expand them to include the rest of the universe of 5 sextillion stars. After all, she already believes that the sun is affected by the gravity of the stars since she believes that the sun circles the core of the Milky Way. As it stands, the combined force of 5 sextillion stars will create a force in a spherically symmetric universe. That force can then be balanced out by the sun, which will allow the Earth to assume the center of mass. In order to counterbalance the force of the stars, the sun needs to be 93 million miles away. All this is founded on basic physics, and there is neither a Galilean, Newtonian or Einsteinian physicist that can disagree with it.

Mary Daly: Then why did Einstein say any perspective was as good as any other?

A Question of Philosophy: Well, you Thomists, jump in. Here's the door: Einstein, like Stephen Hawking in the next generation, was philosophically confused about the difference between math and physics. Equations can be written any way at all. But the universe is what it is. The universe is not an equation; it is a reality. It is this way and not another way.

Einstein got uncomfortable with the confrontation between mathematical and physical reality and that's why he said, when confronted with equations that described things in terms of random motions and probability, that he did not believe that God played dice with the world. It wasn't because he was a theist; it was because his gut refused the diet of theoretical math as a final description of the real universe. The real universe is not a probability, it is this way. Einstein had opened the door for substituting math for physics, but when he saw the next room, he rejected it. But he rejected it by gut, not by philosophy, because he didn't know enough philosophy.

So this is the point about geocentrism: any set of equations which describes the motions of objects in the Solar system without taking gravity into account is just math; it is not about the universe. And if you choose your math on the basis of the theology of a nation that couldn't pass first year algebra, then you're just not a physicist, and not a philosopher, and not a theologian for the faith of the Incarnate Son of God who came to this universe to be with us.

R. Sungenis: Mary, I'm afraid you need to relook at what Einstein said. His General Theory of Relativity (the theory that allows geocentrism as a viable model) was based on nothing but gravity. His Special Theory of Relativity did not include gravity, and that is why he needed to add it to the General Theory. Of the two, geocentrism or heliocentrism, Einstein chose the latter merely out of preference, as do most other physicists, since they know the theological and philosophical implications of choosing geocentrism (i.e., that it couldn't happen by chance; rather, Someone (God) had to actually put it in the center of the universe).

Next, your claim that Einstein got fearful of the situation between math and physical reality and said that God didn't play dice with the world only applies to Quantum Mechanics, not General Relativity and gravity. Einstein could explain the big things (stars and planets), but his theory couldn't explain the small things (nuclear particles), but the small things (at least at this level of our discussion) have little to do with whether the Earth goes around the sun or vice-versa.

Mary Daly: By the way, satellites in space can actually calculate the earth wobbling in space from season to season and also when there is a major earthquake. So the image of centering the universe on a ballerina's nose is rather more serious than you might have thought.

R. Sungenis: No, “satellites” don’t measure a wobble of the Earth, they measure a wobble. Since if the universe rotates around a center of mass it will both precess and nutate (i.e., “wobble”) there is no way for us to distinguish the wobble caused by a rotating universe around a fixed Earth as opposed to wobble caused by a rotating Earth in a fixed universe. Also, when someone claims that the Earth’s rotation or figure axis changed because of an earthquake, this is unprovable. VLBI (Very Long Baseline Interferometry) chooses only one celestial object from which to make such a measurement. As such, there is no way to distinguish the Proper Motion of the celestial object from any other motion. As Einstein said, it’s all relative.

Mary Daly: Saturday, September 09, 2006. [Up-to Date Cosmology](#). (The New Geocentrism, Part II)

St. Augustine stated in his commentary “On the Literal Interpretation of Genesis” that it was “a disgraceful thing” for infidels to hear Christians talking nonsense about cosmology. He then tried to bring the cosmology of Christians up to date.

Well, his updating is now long past its time, and thus, while the latter part of this essay is often quoted as evidence of Augustine’s support for outdated cosmology, the first part of the very same essay (!) is quoted in support of getting ourselves up to date.

R. Sungenis: Yes, and I would use Augustine’s words against Mary Daly herself, since her claims against geocentrism (e.g., geocentrism neglects gravity; that the smaller must always revolve around the larger; that Einstein was confused about math and physical reality) are a perfect example of “Christians talking nonsense about cosmology.”

Be that as it may, Augustine also said something else very important. He chides people who try to put the unproven claims of science above what the Bible says about the cosmos. Check this out:

“But more dangerous is the error of certain weak brethren who faint away when they hear these irreligious critics learnedly and eloquently discoursing on the theories of astronomy or on any of the questions relating to the elements of this universe. With a sigh, they esteem these teachers as superior to themselves, looking upon them as great men; and they return with disdain to the books which were written for the good of their souls; and, although they ought to drink from these books with relish, they can scarcely bear to take them up.” (The Literal Meaning of Genesis, Book 1, Chapter 20, Para. 41, Ancient Christian Writers, *ibid.*, p. 44).

Mary Daly: St. Albert the Great, while too recent (13th century) to qualify as a father of the Church, also said some very trenchant things about the purpose and vocation of the natural sciences:

“The aim of natural science is not simply to accept the statements of others, but to investigate the causes that are at work in nature.” And he further wrote: “In studying nature we have not to inquire how God the Creator may, as He freely wills, use His creatures to work miracles and thereby show forth His power: we have rather to inquire what Nature with its immanent causes can naturally bring to pass.”

R. Sungenis: All well and good, but the fact is that St. Albert was a geocentrist.

Mary Daly: In view of such a tradition of peace with science throughout history, it was only right that several Popes should have been at work to restore the reputation of Galileo, which was so deeply wounded by his one-time friend and supporter, the irascible and misled Pope Urban VIII.

R. Sungenis: First of all, Pope Urban VIII wasn't irascible. That is a myth, and I suggest Ms. Daly read the literature on this issue. She can find it in *Galileo Was Wrong*, Vol. 2. Second, Pope Urban VIII wasn't "misled." He was following the Tradition of the Church which was in absolute consensus that the Greek heliocentrists (the Pythagorean school) were wrong. Not only were all the Fathers in consensus, all the medievals (St. Thomas, St. Albert, St. Boneventura) were all in consensus. The Tridentine catechism of 1566 has four entries endorsing geocentrism. The Council of Trent stated that in any consensus of the Fathers on doctrine, we are bound to them, and thus Pope Urban VIII was obeying his Church. The one who was noted for being irascible was Galileo. Almost every major historian that has written on the issue acknowledges that fact. Mary Daly has her facts wrong.

Mary Daly: 1. In 1741, Benedict XIV granted an imprimatur for the first edition of the complete works of Galileo and had Copernicus taken off the Index, in 1757, implicitly clearing Galileo.

R. Sungenis: Again, Mary needs to read up on this issue before she teaches on it.

The imprimatur was granted under the condition that the stipulations of the Padua Inquisitor, Paolo A. Ambrogio, were followed. The result was that the publication in 1744 had to exclude Galileo's Letter to Christina and the Letter to Castelli, which were two of Galileo's most formidable defenses of Copernicanism. Furthermore, Galileo's Dialogue of the Two Great World Systems had to be printed in Volume IV and accompanied by the 1633 sentence against Galileo (i.e., "vehemently suspected" of "formal heresy"), as well as the text of Galileo's abjuration. The most important feature of the republication was that it was required to contain a preface emphasizing the "hypothetical" character of the book's contents. This requirement shows the consistency of the Church's position, for the same permission was granted to the works of Copernicus in 1620.

So, far from "implicitly clearing" Galileo, Pope Benedict required that the condemnation of Galileo's thesis be clearly indicated.

Mary Daly: 2. In 1822 Galileo's work was specifically taken off the Index under Pope Pius VII.

R. Sungenis. No, Galileo, Copernicus, Zuniga and Foscarini were left on the Index in 1822. Pius VII, because he was given false information by the Commissioner of the Index, Marizio Olivieri, allowed an imprimatur to be given to Canon Settele.

Mary Daly: 3. Later in the same century, Pope Leo XIII arranged that the Vatican itself should publish all twenty volumes of Galileo's work.

R. Sungenis: No, because Galileo didn't have 20 volumes. What the pope allowed was a compendium of 20 volumes that recorded the Church's dealings with Galileo. Pope Leo made no indication that he was endorsing Galileo or rescinding the Church's judgment against him.

Mary Daly: 4. A hundred years later, Pope John Paul II specifically recommended that Galileo's Letter to the Grand Duchess, the very letter at the bottom of all his troubles, ought to be read by everyone as a model of hermeneutics.

R. Sungenis: Even if he did, it is merely his private opinion. The fact is, John Paul II, in his official capacity as pope of the Catholic Church, made no reversal of the decrees against Galileo or heliocentrism, and as pope, he had the perfect opportunity to do so if, in fact, he wanted to make it official Church teaching that Galileo was right and the Church was wrong.

Mary Daly: This Unity of Truth blog is meant to encourage a spirit of peace in the relationship between science and faith, even a sense of the long history of that peace in Catholic circles, in spite of individual errors. It is to be hoped that this will be a place where Catholics will unite their apologetic efforts to overcome such misfortunes as the identification of the name of Galileo with the very disharmony which, according to Stillman Drake, he risked his life to prevent. He was a sincere, wise, devout, long-suffering, and delight-minded Catholic.

R. Sungenis: Not quite. Galileo never married but he fathered two illegitimate daughters and one son between the years of 1600 and 1606 with his long-time mistress, Marina Gamba of Venice, whom he eventually abandoned. In light of his immorality, the unconverted Galileo was hardly the example of a devout Catholic. Although Galileo took his children with him to Florence, he soon found caring for them to be very annoying and he decided to send the daughters to an impoverished convent in Arcetri because of what one historian calls his "irrepressible egotism" that led him to abandon them. The older daughter was baptized as Virginia and adopted the name Maria Celeste when taking her vows as a nun. She was very close to Galileo and had much correspondence with him. At her death in 1634 (a year after Galileo's trial) Galileo became very despondent. She was chosen to read to Galileo the daily penitential Psalms imposed upon him in exile by Pope Urban VIII. The other daughter, Livia, who took the name Arcangela at the convent, maintained her animosity toward him for the rest of his life. The son, Vincenzo, was legitimized by Galileo's former student and Grand Duke of Tuscany, Cosimo Medici.

Speaking of Stillman Drake, he tells us something about Galileo that most historians either ignore or refuse to publish. The last year of his life, Galileo made a public statement that heliocentrism was wrong. In a letter to his friend Rinuccini, he stated the following:

"The falsity of the Copernican system should not in any way be called into question, above all, not by Catholics, since we have the unshakeable authority of the Sacred Scripture, interpreted by the most erudite theologians, whose consensus gives us certainty regarding the stability of the Earth, situated in the center, and the motion of the sun around the Earth. The conjectures employed by Copernicus and his followers in maintaining the contrary thesis are all sufficiently rebutted by that most solid argument deriving from the omnipotence of God. He is able to bring about in different ways, indeed, in an infinite number of ways, things that, according to our opinion and observation, appear to happen in one particular way. We should not seek to shorten the hand of God and boldly insist on something beyond the limits of our competence....
D'Arcetri, March 29, 1641. I am writing the enclosed letter to Rev. Fr. Fulgenzio, from whom I have heard no news lately. I entrust it to Your Excellency to kindly make sure he receives it."
(Stillman Drake, *Galileo At Work: His Scientific Biography*, 1978, p. 417).

Mary Daly: To that end, let me address a recently raised question about the Vatican never having specifically embraced heliocentrism. Indeed. We can be glad of this for two reasons.

First off, the Sun is only the center of the Solar system, not of the universe, so the 17th century embrace of Copernicanism would only have created a new mess for the next generation. In fact, the Ptolemaic understanding of the universe is not Biblical either, and there had already been (long since) a to-do about openness to that.

All this points to the second reason for silence, which is that the Church has wisely ceased to consider stellar and planetary positions a religious issue, so it does not make sense for a modern Pope to endorse heliocentrism, even for the local system. Were he to do so, he would only give the “disgraceful” impression that this idea is new to the Vatican. It is not.

R. Sungenis: It really makes little difference. The fact is, the Church condemned the notion that the Earth moves in 1616 and 1633 and has never rescinded or reversed that decision. The issue is not so much what is in the center, but whether the Earth moves. (Logically, if the Earth doesn't move it will most likely be in the center of the universe). On the issue of whether the Earth moves, the Church and her Tradition have been adamant – it doesn't move. No pope, including John Paul II, rescinded that decree. It still stands as the official position of the Church unless it is rescinded.

Robert Sungenis

January 6, 2012

PS: My apologies for taking so long to respond to Ms. Daly. I was just given her 2006 paper last night by one of my patrons. Until then, I didn't know it existed.