

About scientific (& theological) aspects of Geocentricity

– the view whose system has a non-orbiting & non-rotating earth at exact center of the universe

Introduction

It has been about 4 centuries since Fr. Nicolaus Copernicus suggested a paradigm-shift from Geocentrism to Heliocentrism [now A-centrism] as an explanation of “how the heavens go”.

We believe those who suggest that Sacred Scripture tells us only how to go to heaven & not how the heavens go must be dismissed by the fact that Scripture makes a number of references to “how the heavens go” & a number of those support Geocentrism. It is also a matter of Church history that because of those references, the Fathers & Councils of the Church – prior to the aftermath of the Church’s Galileo affair – were geocentrists. Church decrees against earth movement have never been abrogated or reversed by any ecclesiastical pronouncement, although opinions have not been in short supply.

In 2002 ACs [a-centrists – persons who believe earth moves] were invited to present what they consider to be scientific proof that the earth moves – orbits &-or rotates.

The following pages allow the reader to view ACs presenting their arguments, along with a **GEO** [geocentrist – person who believes earth does not move & is the center of the universe] refuting those arguments. The **GEO** refutations reveal many of the scientific aspects of the geocentricity model. Those scientific aspects are difficult to find, so this is a rare opportunity to learn about them. Some theological aspects are also clarified by the **GEO**.

The **GEO** documents that the very scientists, whose work is generally cited as “the proof” for the AC position, admit that actual proof does not exist for earth rotating &-or orbiting.

The reader will note that in the absence of scientific proof that the earth moves, the frustrated AC often resorts to such emotional terms as “absurd”, “ridiculous”, “incredible”, “irrational” & “illogical” when it is pointed out to him that mathematical constructs for arriving at a desired assumption do not constitute scientific proof of what is moving in the relative motion framework of the universe in which we live.

In the 20th century the cosmology paradigm shifted from Heliocentrism [Galileo’s belief] to A-centrism [a universe without center], but in both systems for the cosmos, the earth is alleged to be moving – contrary to what Scripture tells us. Heliocentrism contended that the Sun did not move & was at the center of the universe, whereas A-centrism now admits that Sun is moving [all over the place], and also alleges there is no center of the universe.

Although average readers may not be able to follow some [or much] of the technical information in these discussions, they will at least get to better understand that earth movement is not as “cut & dried” as the global scientific community would have us believe. You be the judge.

Scientific aspects of Geocentricity are in very short supply here in the 21st century, due mainly to the current world-view espousing A-centricity & Evolutionism, so here is a rare opportunity to learn something about “the rest of the story”. We pray there will be a scientific renaissance in this century. The following discussions are a move toward such openness & honesty in science.

The Webmasters, origins@ev1.net

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origins@ev1.net

**Following are attempts by several “a-centrists”
to give “scientific proof” that the earth moves [rotates &-or orbits]**

AC Letters designate the **a-centrist** – a person who believes the earth to be moving [orbiting the sun &-or rotating] in an a-centric universe whose center is neither the earth nor the sun.

GEO Letters designate the **geocentrist** – a person who believes the earth to be the exact center of the universe and that it is not moving [neither orbiting nor rotating].

About satellites

AC In your article on the rotation of the earth you said,

The GPS satellite is stationary over the earth because the earth is stationary. The GPS satellite doesn't need adjusting very often because there are few things that interfere with its stationary position at 22,236 miles above the earth. It doesn't need to use large amounts of fuel, because it doesn't move.

What I'd like to know is how it became stationary. The people who launched the GPS satellites believed that the earth rotates, and so they placed their satellites into an orbit at which they circle the earth once every day, believing that this would result in a geosynchronous orbit. But if, as you say, those satellites are currently not moving at all, if they somehow went from 6,856 mph to 0 mph (without anybody noticing), what stopped them?

=====

GEO I will answer your question from several angles, the Third of which is the more complete.

First: On the basis of “proof” required of the challenge, the question you propose does not “prove” the case of heliocentrism. It merely poses the hypothetical problem of how a **GPS** (satellites of both the Global Positioning System and the Global TV Satellites) creator or administrator could properly send a satellite into position if he is doing so under the presumption that the earth is rotating. I will answer that question more in the “Third” answer. But for now, your question must ASSUME that the earth is rotating and/or ASSUME that the GPS is moving at 6,800 mph in order for your question to reach the level of proof you are requiring from it. But in either assumption, you are begging the question. What you will need as proof for your claim is direct evidence from the GPS creators or administrators that the GPS is actually moving at 6800 mph (which it must if the earth is rotating). Once that is proven, then you can make a good case that the earth is in rotation. My assertion that the GPS would HAVE to be moving at 6800 is merely the physical requirement for it to be geosynchronous with the earth, if, as it is supposed, the earth is in 24 hour rotation.

And I must caution that proof cannot be merely a statement from the GPS creators and administrators that the GPS MUST be moving at 6,800 since it must keep up with the earth's rotation, for that is also begging the question, being that it assumes one unproven fact in order to prove another. The evidence that the GPS is moving at 6,800 mph must be an independent, technical and verifiable source of information apart from the mere opinion of the creators or administrators. But here's the rub: The only way one could prove that a GPS satellite is moving at 6,800 is to first prove there exists a stationary inertial framework against which to calibrate a speed of 6,800 mph. Since in a heliocentric system there is no absolute inertial framework due to the fact that heliocentric theory posits that all the heavenly bodies are in relative motion, then there is no absolute inertial framework to measure a speed of 6,800 mph.

Also, let me make a correction to the above. I have used the designation **GPS** for the satellites of both the Global Positioning System and the Global TV Satellites. The latter are the ones at 22,000 miles up, and do not move relative to the earth. The former are at about 11,000 miles up, and move relative to the earth in 12-hour “orbits.” To do so, they would have to be traveling 7,800 mph if they orbit with the “rotation” of the earth, and travel at about 500mph against the “rotation” of the earth.

Also, it is worthy to note that the GPS system works on the basis of triangulation. In other words, at least three (usually four) GPS satellites must simultaneously send/receive a signal to a precise location on earth so that the computer can calculate distance and location for any given object by using Pythagorean proportions. But this only strengthens our case against the GPS having to be moving at supersonic speeds, since the difficulty of having three satellites maintaining that high velocity, along with the necessary course corrections requiring the constant speeding up or slowing down of the GPS, would be near impossible. An article from *Physics Today* (“Relativity and the Global Positioning System”, May 2002) confirms this. It states: “Furthermore, because none of the orbits is perfectly circular, a satellite speeds up or slows down to conserve angular momentum as its distance from Earth varies along its orbit.”

Second: To answer your question from another angle, the mathematics required to send up a satellite into orbit or a rocket to Mars is precisely the same whether one makes the calculations from a Heliocentric framework or a Geocentric framework. In other words, a technician may send up a satellite under Heliocentric assumptions, but since these assumptions fit the results of Geocentric assumptions, then the satellite can be successfully launched and targeted. The reason for this is that, since both the Heliocentric model and the Geocentric model must both account for all the motions we see in the sky, then that means that the mathematics used to derive both models must produce the same results. Although the Heliocentric system may, by way of analogy, use the formula $5 + 5 = 10$; whereas the Geocentric system may use $6 + 4 = 10$, the point remains that both systems will arrive at the number 10, since, by analogy, the number 10 is the only number that corresponds to the precise motions we see in the sky. Thus, the left side of the Heliocentric and Geocentric calculations will differ, but the resulting figures on the right side will always be the same.

Be that as it may, over the years, *ad hoc* adjustments made to the Heliocentric model have resulted in a very cumbersome and sometimes unpredictable system. Although the heliocentric model seems simple at first, a large number of motions must be imposed on the heavenly bodies to actually predict what is finally observed. Even at that, the match is not exact. In fact, the sighting coordinates of telescopes and the trajectories of space probes must routinely be corrected to avoid missing their targets. That is a fact that NASA doesn't divulge nearly enough.

More on the GPS: As a background, satellites are an anomaly for scientists. They know they work, but they are not quite sure how. In a similar way, they know that gravity works, but they don't know how. All they really know about gravity is that its force is proportional to the inverse square of the distance, but they don't know what “causes” gravity. Newton himself admitted this. The only thing Newton did is measure the force of gravity and put it into a mathematical formula, not explain the nature of gravity. Unfortunately, most scientists today think that merely because they have a mathematical formula to explain the results of a certain phenomenon, this necessarily means they have discovered the reality, but that is not the case at all. The same reality can be arrived at by many different mathematical formulae.

In regards to the GPS, scientists know that it requires little thrust and little adjustment to keep the satellites where they are. They can't explain it, for their classical understanding of physics requires sufficient amounts of thrust because of the speed required, as well as the necessary adjustments required against the centrifugal and Coriolis forces acting upon the GPS, and the required adjustments against solar disturbances such as solar wind, etc. But instead of admitting this anomaly, they just keep thinking that the earth is rotating and that the satellite somehow manages to keep in alignment with the earth and can be adjusted with little difficulty.

In order to compensate for the supposed effects of a rotating and revolving earth, GPS scientists use what they understand to be "relativistic" calculations based on Einstein's theory of Relativity. But they really don't need these "relativistic" calculations at all. They incorporate them because they already believe the earth is rotating, and their math cannot work in a rotating earth without incorporating Relativity. (In fact, Relativity was postulated in order to avoid having to adopt the results of the Michelson-Morley experiment of 1887 which showed that the earth was stationary). But the fact is that the GPS works more by trial-and-error than by Relativity. One could easily send up the GPS satellites and, by trial-and-error, seek the best "fit" just by adjusting and readjusting them. Since there are fifty earth-based stations with atomic clocks to help find the best "fit," the GPS technician is bound to find one that works. Since the atomic clocks only deviate in time by about 4 nanoseconds, the possibility of finding the best "fit" is very easy, and that's why the GPS work so well.

Third: All this leads to the conclusion, or at least an equally plausible conclusion, that, from the Geocentric perspective, what is REALLY happening with regards to the GPS is that the GPS satellites are moving against the inertial framework of the stars and their forces, not the earth. By "inertial framework" we mean the foundation from which a moving body exerts its escape force and thereby moves away from that foundation. In other words, the GPS is revolving every 24 hours with respect to the stars, but not the earth, since the earth is stationary. In the Geocentric framework, it is the stars which are moving in circular orbit around the earth, and it is the gravity of the stars (or any forces caused by revolving stars) which provide the inertial framework for any moving object on or near the earth. Hence, in the Geocentric framework, when the technician sends up his GPS, he is encountering real forces – forces against which he must operate the GPS. He must calculate how much thrust he needs; the inertial values; and all the other things that will be required to keep the GPS moving against the tidal forces of the stars (although, because he believes the earth is rotating, he thinks he is merely making calculations against the centrifugal and Coriolis effects between the object and the earth). Since the inertial force from the stars at 22,000 miles would be in equilibrium with the gravity of the earth, the GPS satellite can virtually hover above the earth at 22,000 miles with little thrust and little adjustment. The GPS would only require enough power and adjustment so that it can remain in position against unpredictable solar forces.

This also leads to the fact that in modern heliocentric physics and cosmology, the centrifugal force, which is supposedly the only thing keeping the GPS in orbit, is really a fictitious force, since centrifugal force regards only relative motion, not independent motion. If motion is relative, then all you have are relative effects, not real forces. Some scientists, knowing it is fictitious, have called it the "centrifugal effect." But in the geocentric model, as physicist Hans Thirring showed, the centrifugal force is real. The GPS is held aloft by REAL forces, that is, the differential forces created between the stars and the earth. In effect, an earth which is standing still provides the same physics as an earth that rotates. As the famous astrophysicist Fred Hoyle

said: “We know that the difference between a heliocentric theory and a geocentric theory is one of relative motion only, and that such a difference has no physical significance.”

Let me elaborate on this point. I am going to quote from a few paragraphs in a recent article in *Physics Today* (May 2002) regarding how the GPS works. It reads:

In Earth’s neighborhood, the field equations of general relativity involve only a single overall time variable. While there is freedom in the theory to make arbitrary coordinate transformations, the simplest approach is to use an approximate solution of the field equations in which Earth’s mass gives rise to small corrections to the simple Minkowski metric of special relativity, and to choose coordinate axes originating at the planet’s center of mass and pointing toward fixed stars. In this Earth-centered inertial (ECI) reference frame, one can safely ignore relativistic effects due to Thomas precession of Lense-Thirring drag... (*Physics Today*, p. 42)

Did you catch that?! Let me translate for you. “General relativity allows the physicist to use all kinds of fudge factors to account for the results he sees. [The major fudge factors are the Fitzgerald Contraction and the Lorentz-transformation equations which allow you to change time, length, distance and mass, in order to arrive at the answer you want, but we won’t get into those right now]. But we are going to dispense with all those “arbitrary” transformations! We are going to use the Earth as the inertial frame of reference! In other words, we’re going to pretend that the Earth is standing still to figure out how the GPS works, and we can do so because the Lense-Thirring results said we could!”

In other words, this scientist, although believing that the Earth rotates against the stars, says that it is easier to do his calculations based on a fixed Earth, and that he can do so because a fixed Earth produces the same results as one that rotates against fixed stars! How deceiving for the layman! He is told that scientists are going to use a fixed-Earth model of the solar system for all his satellite and rocket ship launches, yet he writes in all his textbooks that the earth IS rotating and that there is no way it could be fixed. Give me a break!

Later in the same article he says much the same thing:

Generally, however, the transmissions arrive at different times. The navigation messages then let the receiver compute the position of each transmission event in the Earth-fixed WGS-84 frame. Before equations can be solved to find the receiver’s location, the satellite positions must be transformed to a common Earth-centered inertial frame, since light propagates in a straight line only in an inertial frame... (*Ibid.*, 45).

In other words, calculating the GPS position cannot be solved using HIS equations; rather, he must use equations that are based on a stationary earth that is inertial. Why? Well, he had already told us in an earlier paragraph that “the principle of constancy of “c” [the speed of light] cannot be applied in a rotating reference frame, where the paths of light rays are not straight, they spiral” (p. 44). So rather than admit that his Relativity theory does not really answer the question of light traveling in a rotating frame of reference, he just borrows from Earth-fixed inertial equations, and no one is the wiser.

In another paragraph he states:

Thus, for each atomic clock, the GPS generates a ‘paper clock’ that reads T. All coordinate clocks generated in this way would be self-consistently synchronized if one brought them together – assuming that general relativity is correct. That, in essence, is the procedure used in the GPS”. (*Ibid.*, p. 43)

Notice that he said, “assuming that general relativity is correct.” In other words, this scientist, although he is writing an article titled “Relativity and the Global Positioning System” and

believing that Relativity is the basis for it, makes a casual admission that there is a possibility that General Relativity is NOT correct. He only assumes it is correct. Why? Because there has been a lot of discussion in recent years whether Relativity is indeed correct. I'll just give you two examples. (1) One of Einstein's more popular "proofs" for Relativity was the precession of the orbit of Mercury. Although Einstein's figures successfully predicted the precession of Mercury, it was discovered that this was only by accident, since Einstein's formula incorrectly predicts all the other precessions of the remaining planets! In one of the planets, Einstein's figures have the recession going in the opposite direction! (2) Einstein predicted the bending of light around the sun (but others did this in 1810). In the 1920 experiment, some of the deflected star light fit Einstein's theory, but most of the other starlight did not fit, and still others were deflected in the wrong direction! But the pro-Einstein advocates only kept the stars that gave the right answer! This experiment has been done many times, but Relativists still use the 1920 results because the current results are worse than the 1920 results. On top of this, P. Moon and D. E. Spencer (*Philosophy of Science*, 1959) explained the precession of Mercury from a Geocentric perspective without Relativity or non-Euclidean geometry (pp. 125-134) – the very opposite of Einstein's theory.

Now, here's another paragraph from the same article in *Physics Today*:

In the equation 3, the leading contribution to the gravitational potential Θ is the simple Newtonian term GM/r . The picture is Earth-centered, and it neglects the presence of other Solar-system bodies such as the Moon and Sun. That they can be neglected by an observer sufficiently close to Earth is a manifestation of general relativity's equivalence principle. (*Ibid.*, p. 43)

This is interesting. Even though scientists believe that the earth is kept in its orbit around the sun due to the sun's strong gravitational pull, and that the tides on earth are caused by the strong gravitational pull of the moon, this scientist claims that such forces can be neglected when sending up satellites. Oh really? If the moon can pull on the earth's water with such tremendous force, how is it that it can't pull on a satellite that is 22,000 miles closer to the moon than it is to the earth?

Notice also that he again makes reference to the "Earth-centered" frame of reference. How can he do so this time? Because he has commandeered "general relativity's equivalence principle." What is the equivalence principle? It's the principle that allows them to change frames of reference at will; whatever one suits them will be fine. It says, for example, that, if you fall to the ground, you can't tell whether you fell toward the ground or the ground came up and hit you. Both are "equivalent," and in a universe with only relative motion, not inertial motion, one cannot prove one proposition over the other. Do you see how much absurdity is created when you deny that the Earth is fixed? One can say that the Earth hit him, not that he fell to the ground! We put people in insane asylums for less than that!

How does this benefit the author of the *Physics Today* article? Well, by the principle of equivalence, he can discount all the forces he knows to be in the solar system and beyond, and then transfer all those supposed forces as if they were forces coming from the Earth only, and thus his math works!

The author then refers to another anomaly he can't explain between Relativity and the GPS. He writes:

One of the most confusing relativistic effects - the Sagnac effect - appears in rotating reference frames. (See *Physics Today*, October 1981, page 20)...Observers in the non-rotating ECI inertial frame would not

see a Sagnac effect. Instead, they would see that receivers are moving while a signal is propagating...Correcting for the Sagnac effect in the Earth-fixed frame is equivalent to correcting for such receiver motion in the ECI frame...

Yes, the author is right. It is “confusing.” Unfortunately for him, the reason it is “confusing” is that Relativity has never explained the Sagnac effect, found by Georges Sagnac in 1913, nor its follow up experimental verification performed by Michelson-Gale-Pearson in 1925. In fact, according to Dean Turner in *The Einstein Myth and the Ives Papers*, he writes: “I pause to note that one may scan Einstein’s writings in vain to find mention of the Sagnac or Michelson-Gale experiments. The same can be said of general physics textbooks and of the 1971 McGraw-Hill *Encyclopedia of Science and Technology*... Such an oversight in these distinguished encyclopedias constitutes a stinging indictment of professional scientific reporting” (p. 44). Why were they not mentioned in Einstein’s writings? Simple. Because they give experimental evidence for the falsity of Relativity theory. Einstein not only did this with Sagnac and Michelson-Gale, he also did it with Joos, Ives, Miller, Kennedy-Thorndike, and many other scientists who questioned or rejected his theory.

Some basic physics

What is the Sagnac effect? It is the result of an experiment that showed the earth to be in some type of movement against another substance. The “movement” is termed “rotation” and the substance is some aether-type medium that scientists had discarded when Einstein developed his Relativity in 1905. (Thus, we can see why Einstein would have ignored Sagnac’s results). But although Einstein neglected its results, other scientists did not, including the author of the article in *Physics Today* (May 2002). How does the author account for the Sagnac effect? By using the same Relativistic “transformations” that he told us he wasn’t going to use in a previous paragraph! This is what he writes:

The Sagnac effect also occurs if an atomic clock is moved slowly from one reference station on the ground to another...Observers at rest on the ground, seeing these same asymmetric effects, attribute them instead to gravitomagnetic effects – that is to say, the warping of space-time due to spacetime terms in the general-relativistic metric tensor... (*Ibid.*, p. 44).

Clear as mud, right? This is the kind of ‘begging the question’ mumbo-jumbo you see often in theoretical physics of the Relativity variety. What he just said, in case you missed it is, although Relativity cannot account for the Sagnac effect, we are still going to attribute the discrepancies in GPS calculations to Relativistic effects, namely, the warping of “spacetime due to spacetime terms in the general-relativistic metric tensor.” You see, he is locked into a system that doesn’t give him the answers he needs, but since he doesn’t want to admit that they could all be answered by assuming a stationary earth and a revolving aether-type medium, then he will continue to push Relativity as the answer; and all his readers will bob their heads up and down and confirm his gospel, as they have done since 1905.

The author more or less admits the effects of these unanswered questions when in one of his final paragraphs he writes: “Historically, there has been much confusion about properly accounting for relativistic effects. And it is almost impossible to discover how different manufacturers go about it!”

Ah, yes, and now we can see why there is so much confusion, because no one knows what the heck they are doing! They know their Relativity equations are just fudge factors to explain the things they simply cannot understand under the scenario of a moving earth. Yet they have the

audacity to borrow non-moving or “Earth-fixed” equations in order to give the appearance that an Earth in Relativity works! Now you wonder why I’m on the warpath with Geocentricity?

One more thing before I leave this topic. The difference between the Geocentric and Heliocentric concept is important, for one of the major flaws in modern heliocentric theory is the failure to account for the effect of the stars on all the motions we see. Modern science has virtually dismissed the effect of forces from the stars, and instead has based its solar cosmology almost entirely on the so-called “centrifugal effects” created by the planets in motion. But this is inevitable, since once you posit that the stars are “fixed” (as modern cosmology does) then the only thing you have left to determine why solar and terrestrial objects move in the rotational paths they do is by the supposed centrifugal effect. And thus, all of the modern heliocentric physics seeking to understand rotational motion is based on a fictitious force, which is not very comforting for anyone wishing to have solid answers for why things work the way they do.

Proof lacking for rotation & orbiting

AC Assume that the Earth does not rotate about its own axis. (This is the assertion to be disproved.) Since the Earth does not rotate about its own axis, and since we see the heavenly bodies traversing the sky each night, we therefore conclude that the heavenly bodies rotate about the earth.

Since we see the heavenly bodies in roughly the same positions from night to night (e.g. at 10 PM Jupiter is at about the same place as it was last night at 10 PM.) we therefore conclude that the heavenly bodies rotate about the Earth with a period of roughly twenty-four hours. (Here – in order to keep the math simple – we assume a circular orbit for the heavenly bodies and a period of exactly twenty-four hours.) Since any given heavenly body traverses a circle about the Earth in twenty-four hours, and since the circumference of that circle is $2\pi r$ (r being the distance from Earth to the body) the velocity of the body will be $(2\pi r)/(24 \text{ hours})$. It can be shown (You’ll trust me on the math, I hope. I’ll submit it if you insist.) that any body orbiting the Earth at a distance of more than 4.125×10^{12} metres (a couple AU less than the distance between here & Neptune) must be travelling at more than 3.0×10^8 metres per second.

Since Neptune & the further bodies can be shown to be traveling at more than 3.0×10^8 metres per second, and since 3.0×10^8 metres per second is the speed of light in a vacuum, and since no material body may travel at or above the speed of light in a vacuum we are faced with an absurdity. And we can therefore conclude that our initial assertion is false.

Since we have shown it to be false that the Earth does not rotate about its own axis, we can infer that it does.

Much to my horror I have discovered that I have left a clarifying point out of my proof; i.e. my proof – at least the way I’ve worded it – applies only to those heavenly bodies in the Zodiac. Those would be the sun, the planets, with the exception of Pluto, and the fixed stars in the Zodiac. The same argument could be applied to the other stars in the sky, but the math would be different, so I won’t include them here.

=====

GEO What you postulate as proof of a rotating and revolving earth does not prove it at all. First, you assume a few things as proven which have not in fact been proven. One is your assumption that the speed of light (I assume in a vacuum) is constant, either here or anywhere

else in the universe.

Second, you assume that the planets (and in your second letter, the stars) themselves travel at or beyond the conventional speed of light in order to complete their journey. Let me explain both of these issues by starting with a little history of physics.

In 1887, Michelson and Morley did an experiment to detect any difference in the speed of light between north-south travel and east-west travel. A difference in speed was expected because they assumed that the Earth was orbiting the Sun in a stationary aether. From our perspective on Earth, the aether would blow past us like a wind in an east-west direction. Michelson and Morley reasoned that we should notice changes in the speed of light in east-west travel, but fixed speed in north-south travel. The experiment failed to measure any difference in speed, no matter when and where they tried it. Scientists were baffled.

Rather than admitting the possibility that the earth was stationary with respect to the aether, scientists dispensed with aether and claimed that the speed of light was constant. In fact, the speed of light was claimed to be the only constant in the universe, whereas mass, length, distance, time, and anything else became relative. This became known as the Relativity theory. But all the Michelson-Morley experiment showed was that aether wind was either too small to measure or was non-existent. Michelson and Morley, however, demonstrated nothing about the constancy of the speed of light through space.

Added to this is the experiment performed by Georges Sagnac. A writer for *Physics Today* writes: “One of the most confusing relativistic effects – the Sagnac effect – appears in rotating reference frames. (See *Physics Today*, October 1981, page 20) ... Observers in the non-rotating ECI inertial frame would not see a Sagnac effect. Instead, they would see that receivers are moving while a signal is propagating ... Correcting for the Sagnac effect in the Earth-fixed frame is equivalent to correcting for such receiver motion in the ECI frame...”

Yes, the author is right. It is “confusing.” Unfortunately for him, the reason it is “confusing” is that Relativity has never explained the Sagnac effect, found by Georges Sagnac in 1913, nor its follow-up experimental verification performed by Michelson-Gale-Pearson in 1925. In fact, according to Dean Turner in *The Einstein Myth and the Ives Papers*, he writes:

I pause to note that one may scan Einstein’s writings in vain to find mention of the Sagnac or Michelson-Gale experiments. The same can be said of general physics textbooks and of the 1971 McGraw-Hill *Encyclopedia of Science and Technology*... Such an oversight in these distinguished encyclopedias constitutes a stinging indictment of professional scientific reporting. (p. 44).

Why were they not mentioned in Einstein’s writings? Simple. Because they give experimental evidence for the falsity of Relativity theory. Einstein not only did this with Sagnac and Michelson-Gale, he also did it with Joos, Ives, Miller, Kennedy-Thorndike, and many other scientists who questioned or rejected his theory based on the results of their verified experiments.

What is the Sagnac effect? It is the result of an experiment that showed the earth to be in some type of movement against another substance. The “movement” is termed “rotation” and the substance is some aether-type medium that scientists had discarded when Einstein developed his Relativity in 1905. (Thus, we can see why Einstein would have ignored Sagnac’s results). But although Einstein neglected its results, other scientists did not, including the author of the article in *Physics Today* (May 2002).

The Michelson-Gale experiment of 1925 [A. A. Michelson and H. Gale, “The effect of the Earth’s Rotation on the Velocity of Light,” *The Astrophysical Journal*, Vol LXI, No. 3, April 1925, pp. 137-145] measured a difference in the speed of light at two different latitudes. He concluded that the aether-wind speed changed with latitude due to the rotation of the Earth in a stationary aether. (This is because the radius of rotation decreases with increasing latitude). This experiment disproves the constancy of the speed of light assumption and provides adequate evidence for the existence of the aether, just as Georges Sagnac found. Dalton Miller did even more comprehensive studies to confirm these results. There is quite a collection of letters between Einstein and Miller in which the former is trying to persuade the latter not to put credit in the results.

Heliocentrists might be tempted to say that Michelson-Gale provides “proof” of the rotation of the Earth, but that would be presumptuous. The only thing Michelson-Gale provided for us is that either the Earth is moving with respect to an aether, or the aether is moving against a stationary Earth.

Not only did Sagnac and Michelson-Gale show the possibility of aether, but an experiment performed by Carl Anderson in 1932 showed another anomaly to Relativity theory. Relativity theory postulated that space was a vacuum – nothing existed between the heavenly bodies. But Carl Anderson showed that a 1.02 million electron volt charge distributed anywhere in space produced a free positron and electron. When the 1.02 Mev was reapplied, the positron and electron disappeared. Einstein’s explanation of this phenomenon was that matter was created and then annihilated. (This may have been where today’s scientists postulate that the universe began from the singularity [“nothingness”] of the Big Bang). Rather than reason that space was filled with positron-electron pairs, in order to save his Relativity theory, Einstein maintained that matter was created and destroyed.

So how could the planets and stars revolve around the Earth each day if the Earth is fixed in space? One of the more cogent explanations is that the planets, sun and stars themselves are not moving; rather, they are all embedded in a medium that itself rotates once every 24 hours. This medium would contain the so-called aether or even the Anderson positron-electron pairs, and as some rightly hold, particles in the Planck dimensions. In fact, Hans Thirring, famous for the Lense-Thirring effect, found that for a rotating shell of matter, the interior field of the shell is similar to the field in a rotating system of coordinates, leading to gravitational forces similar to the centrifugal and Coriolis effects in the Heliocentric system.

The constitution of the rotating medium would be that coincident with the Planck dimensions found in black holes. Modern science is familiar with such mediums. For example, in *The Very Early Universe* (Gibbons, *et al*, 1983) astrophysicist Markov defines the particle he calls the “maximon,” which possesses the 10 to the 94th grams per cubic centimeter associated with Planck dimensions.

Also noteworthy in this respect is the work of Dr. Robert Moon, Chicago University physicist, who in his article “Space Must Be Quantized,” shows that the prevailing theory that space is a vacuum is not supported by the evidence. The reason? Because space has an impedance of at least 376 ohms, something not predicted or accounted for in conventional science, but coincident with the spatial mediums of Geocentric understanding. Princeton’s John Wheeler is credited with being the first to describe what is now called “spacetime foam.” This is Wheeler’s theory that space is occupied by ultra-dense particles. Stephen Hawking has postulated something

similar. Both Wheeler's and Hawking's "foam" reasons that the particles are at Planck dimensions. Thus, this is not something confined only to Geocentric scientists. In an article by J. P. Vigié, "De Broglie Waves on Dirac Aether" in 1980, he writes: "Since Dirac's pioneer work it has been known that Einstein's relativity theory (and Michelson's experiment) are perfectly compatible with an underlying relativistic stochastic [read *aether*] model."

In fact, the 3 degree Kelvin radiation discovered by Penzias and Wilson is not the remnants of the Big Bang at all, but is more likely the subatomic vibration inherent in this Dirac aether or Wheeler-Hawking "foam."

Moreover, Vigié's work, along with colleague Petroni, published "Causal Superluminal Interpretation of the Einstein-Podolsky-Rosen Paradox" in *Physical Review Letters* in 1981. He reports the existence of faster-than-light interactions between an atomic beam of calcium and krypton ion laser, and shows that these are best explained by the stochastic model of space (i.e., *aether*) rather than the vacuum of conventional physics. There are many other scientists and experiments that could be mentioned to support these findings. Just recently (2001), Princeton scientists showed that a pulse of laser light traveled through cesium vapor at 310 times the distance it traveled in a vacuum.

To rotate this spherical body within 24 hours, we can suppose that there is a massive shell at the outer limits providing sufficient gravity to pull the Sun and the stars in their orbits. The aether, like water in a spinning bucket, would rotate along with the universe. Hence, to those inside the shell, there would be no way to measure the rotation; the entire frame of reference would be pulled around by the rotating shell. This concept is not a novelty. It is known in conventional physics as "frame pulling" or "frame dragging," and was discovered by Einstein, Lense and Thirring, and remains an area of active research. A rotating inertial frame of reference would abide by Kepler's laws of planetary motion, as well as explain the rotating Foucault pendulum, centrifugal and Coriolis forces.

In fact, a rotating universe would explain something that conventional science cannot explain. It is known by scientists that, in order to account for the so-called expanding universe theory, sufficient matter is needed. But scientists have found only 1% of the matter needed. To compensate for this, Einstein (again to save Relativity theory) created his "Cosmological Constant" – a fudge factor to allow the universe to keep expanding. Today scientists account for the missing matter by referring to it as Dark Matter, but they haven't found it yet. I guess it must really be "dark." :)

The concept of a rotating universe deals quite nicely with this issue. The less mass the better. And the mass that is present does not collapse in on itself because the centrifugal force (which is a real force in a Geocentric model) causes the heavenly bodies to move outward in just the right balance to compensate for the pull of gravity inward. Hence the mass of the universe (the "1%" conventional science has found) and the spin of the universe (24 hour cycle) is enough to achieve equilibrium.

As for faster-than-light action, the rotating universe would have stars traveling in excess of the speed of light, since with respect to the rotating aether, the stars are not moving and there is no difficulty of exceeding the local speed of light.

Moreover, in 1955, the astronomer Van de Hulst writes: "In 1930, astronomers discovered with some shock that as the light of stars passes through certain regions of interstellar space it is

dimmed and scattered in various directions... If there was indeed an interstellar haze which dimmed the light of distant stars or made them altogether invisible, then many of their calculations of star distances were wrong. Further studies proved that the fear was justified. Starlight passing through the crowded regions of our galaxy loses roughly half its energy by absorption and scattering in every two thousand light years of travel. As a result, even with our most powerful telescopes, we cannot see the center of our galaxy...Beyond about six thousand light years from our observing station most of our studies of the galaxy are literally lost in the fog." In 1981, the astronomer Baugher wrote: "Much of the galaxy is...hidden from our view, making the study of its structure quite difficult." There are many other statements like these from astronomers.

I think it is also noteworthy to point out that conventional physics and astronomy also have problems with the speed of light. For example, Hubble's Constant was formulated ($H = 100$ km/s/megaparsec) based on the proportionality of the red-shift to the distance of the star. The problem, of course, came in when telescopes were able to see beyond 50 gigaparsecs, which would require the galaxies to be receding at many times the speed of light. Then when telescopes were able to see to 500 gigaparsecs, this means that the galaxies would have to be receding at hundreds of times the speed of light. Thus, something is obviously wrong with the whole concept.

This evidence certainly doesn't lend itself to making the conventional wisdom of Heliocentrism sacrosanct by any stretch of the imagination. In fact, things work much better in the Geocentric model.

More on satellites

AC As I understand it, the real issue we're discussing here isn't GPS satellites in particular, but geosynchronous satellites in general, right? I mean, I'm assuming you just chose GPS satellites as a convenient example, right? Well, if so, we're going to have to pick a different example because I did a little research, and it turns out that the GPS satellites are not in geosynchronous orbits. There are 24 satellites in the GPS network, operating in six different orbital planes, but each GPS satellite orbits at an altitude of only about 12,000 miles (about half the altitude of a geosynchronous satellite) and makes two complete orbits of the earth in less than 24 hours. So let's forget the GPS satellites and consider instead a truly geosynchronous satellite, such as a *Telstar* communication satellite.

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GEO I already explained this difference in a previous exchange. I said I had used the term GPS for both the satellites at 11,000 and 22,000 miles, the latter being geosynchronous. For the future, I will use GSS for the GeoSynchronous Satellites.

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AC And my assertion is that a geosynchronous satellite must move at about 6,800 mph whether the earth rotates or not. That's simply the speed it has to maintain in order to maintain its orbital altitude of 22,240 miles. Any slower and it would fall into a lower orbit. Any faster and it would rise to a higher orbit. A satellite orbiting a celestial body follows a very simple equation of orbital motion, and that equation is independent of the rotational velocity (if any) of the celestial body itself. Put simply, a satellite in orbit around the earth doesn't care whether the

earth is rotating beneath it or not. It moves at a velocity proportionate to its distance from the earth, and that is just as true of the *Telstar* satellite orbiting at 22,240 miles as it is of a Space Shuttle orbiting at only 300 miles. Each of those machines will move around the earth according to the equation $v = \text{SQRT}(GM / r)$, where v is the velocity of the satellite, G is the universal gravitational constant, M is the mass of the earth, and r is the distance of the satellite from the center of the earth.

It's easy to determine from this equation that in order for the Space Shuttle to maintain an orbital distance from the earth of 300 miles, it must travel at a velocity of 17,058 mph. And in order for the *Telstar* satellite to maintain an orbital distance from the earth of 22,240 miles, it must travel at a velocity of 6,879 mph. That's true whether the earth is rotating or not. The fact that such satellites appear not to move relative to the surface of the earth simply proves that the earth IS rotating.

You know as well as I do that a satellite has to keep moving in its orbit or it will fall (in fact, an orbit is nothing but a free-fall toward a planet whose surface is always curving out of the way), and so in order to maintain that geosynchronous satellites don't actually orbit the earth at all, but just levitate up there in space, you assert that as luck would have it there just happens to be a mysterious gravitational force at 22,240 miles from the earth that just happens to precisely balance the gravitational attraction of the earth at that altitude. Now, it seems to me, with all due respect, that you are simply manufacturing "facts" to fit your theory, pulling imaginary forces out of thin air simply because you need such forces to exist. But assertion is not proof. I've proved from simple orbital mechanics and from the fact that equatorial satellites with a 24-hour orbital period are stationary with respect to the surface of the earth that the earth does rotate. You need to prove that the hypothetical (and suspiciously convenient) gravitational force you've made up really does exist.

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GEO You need to prove that the earth is rotating on an axis and/or revolving around the sun. My offering of an alternate scenario as to what is occurring with a geosynchronous satellite is merely gratuitous. The only reason for these exchanges is to show Heliocentrists [A-centrists] that there is no proof for their view, since their [your] system has anomalies that can't be explained.

Second, you haven't proven that the earth rotates. All you have done is given us a mathematical formula from Newtonian gravitational mechanics that certain men use to send up the space shuttle into orbit, or any object that must travel around the earth. But the math doesn't prove that the earth rotates. The only thing math does for certain is put in proportion the various forces one observes. As I said in my last post, Newton did not explain what made one object attracted to another. He only showed the results of the attraction in a mathematical formula, and he had to inject his Gravitational Constant in order to do so. Thus, all the formulas you offer us, don't prove that the earth rotates. They only prove that an object above the surface of the earth must somehow counteract the force that is pulling it (or pushing it, as the case is in my system) to the earth in order for it to remain aloft.

Let me explain by way of analogy why mathematics doesn't prove your case or necessarily represent reality. I'm in a room dropping bowling balls to the ground. You are outside listening to the sound, but can't see inside the room. I ask you to tell me the identity of the object that is

making the noise, and how it is making the noise. You can't tell because you can't see it. All you can do is tell me the amount of noise you hear and at what intervals the noise is produced. Thus, you put your experience into a mathematical equation: "I heard 10 noises, 5 seconds apart." You may postulate that I am creating the noise by making tiny dynamite explosions; banging a hammer on a board; playing a tape recording of exploding bombs; or any number of explanations. All of them fit the "10 noises, 5 seconds apart" equation, but none of them represent the physical reality. Only the answer that says it was bowling balls dropping to the ground is correct. This is precisely what Newton's laws are. Mathematical equations may or may not represent the actual reality.

Now let me address your questions about the GSS in more detail.

The science books tell us that all satellites and all planets follow Kepler's law in their revolutions. For example, after describing Kepler's perigee and apogee revolutions, Franklyn Branley in *The Moon: Earth's Natural Satellite*, says: "The velocity of all the planets and all the natural and man-made satellites varies in a similar manner" (p. 23). But here's the problem. GSS are man-made satellites that do not follow Kepler's law, for they are said to travel at the same distance from the earth (22,236 miles) at each moment of revolution. So how is it that all other satellites and planets obey Kepler's laws of motion, except the GSS? This is rather significant, since Kepler's laws were formulated precisely to support the Heliocentric system, since Copernicus' original model of planets going around the sun in circular orbits had more problems than the Ptolemaic system it replaced. So what's this tell us? That scientists simply have no explanation for why the GSS satellites work. You asked me later in your letter if there was a "red flag." Yes there is, but it's in your camp, obviously, because here you have a satellite that doesn't obey any of the Keplerian laws of orbiting bodies! But I do have an explanation. The GSS are not orbiting the earth. They are hovering over the earth in a gravitational and/or electromagnetic band precisely 22,236 miles above the earth. The next time you look at one of those satellite weather maps on TV which show a stationary earth but clouds moving across it in time-lapse photography, think about this.

As I said in my answer to your first Challenge, the GPS scientist abandons his Relativity theory in order to use a fixed-Earth for his calculations. You must understand that when they make the calculations for the GPS from a fixed-Earth position, they are not doing it for simulation or practice before they do the real thing. The article in *Physics Today* I gave you states that they MUST use fixed-Earth calculations, because they are the only ones that work. This gives me a chance to answer even better your first Challenge question, which concerned the GSS technician who positions the GSS while thinking that it is going 6800 mph. I have a letter from the Office of Satellite Operations in Washington DC concerning the repositioning of a GSS satellite 10.75 degrees, asking this question: "Is the present movement of GOES (a GSS satellite) planned and executed on the basis of a fixed earth or a rotating earth?" The answer, written by Lee Ranne from the *National Oceanic and Atmospheric Administration* on 11-22-1989 (I have her phone number if you want it) says "Fixed earth."

Do you know what that really means? Here's the upshot: If the earth must be fixed in order for them to make the correct calculations of an existing GSS satellite, then this means the GSS must also be fixed in order for them to make the correct repositioning calculations. Obviously, you can't make repositioning calculations of a GSS going 6800 mph against a fixed earth. If the GSS was not stopped, it would continue to travel 6800 mph (about 2 miles per second) and be way out

of position for any adjustments. So it must be stopped and regarded as fixed just as the author of the above letter regards the earth as fixed. But how do they stop it if it's going 6800mph and still save Copernicanism? They do it with fixed earth and fixed GSS mathematics but still think that the Earth and the GSS are rotating. His Copernican belief system forces him to think that the earth is rotating and the GSS is traveling at 6800, but he knows he can't reposition the GSS on that basis, so he switches to a fixed earth and fixed GSS basis, for only "fixed" mathematics will work. So what do we have? We have another case where the math doesn't match the reality, only in reverse.

If the earth is rotating, the GSS must remain in precise synchronization with the earth. The GSS must travel precisely at 6856 mph without deviation. If it slows down just 1/4 mph, it would throw the GSS off my one mile every four hours, or forty-two miles in a week, or 180 miles in a month, or 2,200 miles in a year. As I said before, I think such precision is well nigh impossible to achieve, even with the repositioning thrusters. But for the sake of argument, let's say that it can be achieved. Are there any other anomalies which dictate against it? Yes, there is one gigantic one written in all science books that teach about the earth's rotation. All the books teach that the earth does not rotate steadily, but is somewhat spasmodic. The same is true for the moon. In fact, I have a book titled *Newton's Clock: Chaos in the Solar System* by Ivars Peterson (1993) that lists all the perturbations of the earth, moon and other planets. Their motions are sometimes so unpredictable that scientists wonder how the solar system stays together. The author says that Newton himself thought that God had to intrude every so often to "fix" the solar system (pp. 16, 226). The famous physicist Poincare termed it "dynamical chaos." At any rate, the point is that scientists believe that the earth's rotation fluctuates periodically. So here's the question? How is a satellite that is moving precisely at 6856 mph going to know when the earth is going to go into a spasmodic rotation? Not only would it have to know it, it would have to speed up or slow down in precise synchronization with the earth. Just one 1/4 mph difference for five seconds would throw it 10 miles off course. Do you know how many TV sets on earth would immediately see fuzz on their screen if that happened? Practically all of them, since dishes from all over the hemisphere are pointing to a specific point in the sky. As for the space shuttle going at 17,000 mph, you haven't proven that it needs to attain that speed due solely to the Earth's gravitational field. It is my contention that the Newtonian formulas you are using have no way of knowing what other forces (e.g., cosmic forces) are acting upon the space shuttle. Since Newton never explained what Gravity IS, then neither he nor you are hardly in a position to tell us what components constitute his mathematical formula.

I would also posit that speed is determined by an inertial frame of reference. NASA measures the speed of the shuttle against what they believe is a rotating earth which is moving at 1000mph in the same direction as the shuttle. Since the shuttle orbits at 28.5 degrees of the equator, then it is close enough for us to say that the shuttle is really only going about 16,000 mph or less. You see, this is the problem you get into with a moving earth. You have no way to make measurements that are devoid of relativity. So what appears to be one speed, is really another speed. You can do the same thing in your car. If, at the equator, you travel in your car from west to east at 60 mph, your speedometer tells you 60mph, but, according to relativity theory, you can be considered going at 1060mph, since you are moving with the earth's rotation (or, by Einstein's "equivalence principle" you can be considered stationary and the earth moving beneath you at 1060 mph). In fact, since in the heliocentric system the earth is moving around the sun at 66,000 mph, then you are really traveling at 67,060 mph in your car. And if you add the fact that the sun is supposedly

going around the galaxy about 500,000 mph, then you are really going 567,060 mph. And if you add that the galaxies are receding from each other near the speed of light, well, you can see how fast one would be traveling.

By the way, Hubble's constant used to tell us that the galaxies were receding away less than the speed of light. But that was when we could only see about 500 or so megaparsecs into the universe. Now that we can see 500 gigaparsecs into the universe, Hubble's constant means that the galaxies are receding at hundreds of times the speed of light. But if the galaxies are receding at the speed of light or faster, then that means we are moving at the speed of light or faster. Obviously, that is not the case. It's no surprise, then, that Hubble's "constant" is being constantly revised.

Speaking of Hubble, did you ever wonder why the Hubble space telescope doesn't take time-lapse photography of the earth to prove that the earth is rotating? A curious lacuna for you to answer.

(Incidentally, using your formula of $v = \text{SQRT of } Gm/r$, let's plug in the numbers. A speed of 17,000mph = v ; the radius is 4000 miles of the earth's radius plus the 300 miles for the altitude of the shuttle. The square root of Gm divided by the radius of 4,300 gives 1,250,000,000,000 as the value of Gm for the velocity of 17,000 mph. Applying the same formula to the GPS satellites that, from NASA records, travel around the earth in 12 hours. First, since the GPS are at 11,000 miles above the earth, if we add 4000 miles of earth's radius to the 11,000, we have 15,000 miles of radius (give or take for the elliptical orbit). Using $2 \times \text{Pi} \times \text{radius} = 94,200$ miles of circumference the GPS must travel per day. Since it travels this distance in 12 hours, then it must be traveling at 94,200 divided by 12 which = 7,850 mph. But if you plug in the same numbers into your $v = \text{SQRT of } Gm/r$ formula, you get a $v = 9,128$ mph (the square root of 1.25×10^{12} divided by 15000 = 9,128). So you have a difference of 1,278mph. Something's not right).

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AC Correct, and that's why I don't claim that the *Telstar* satellite MUST be moving at 6,800 mph in order to keep up with the earth's rotation. I claim instead that it must be moving that fast in order to maintain its orbital altitude above the earth, whether the earth rotates or not. The fact that it DOES keep up with the earth's rotation at that altitude merely proves that the earth IS rotating, and it confirms that the scientists who chose an orbital altitude that would give their satellite an orbital period of 24 hours knew what they were doing.

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GEO No, because you haven't proven that any lower moving satellite is moving at a specific speed, nor have you proven that it moves at said speed because it is fighting against the gravity of the earth only.

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AC You can verify *Telstar's* velocity yourself simply by applying the elementary laws of orbital mechanics to the known parameters of the satellite's orbit (i.e., its distance from the earth).

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GEO No, that's begging the question – trying to prove a point by means of an unproven

assumption.

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AC That's true, I suppose, but I don't see how it makes any difference to my argument. Just to make things simpler, let's pretend there's no sun and no stars or planets. Let's pretend there's just the earth sitting motionless in space with a satellite orbiting it. At a given altitude, the satellite **MUST** go around the earth at a given speed. It doesn't matter whether the earth itself is rotating or not. However, if we put a satellite into an equatorial orbit, and if we give it an orbital period of 24 hours, and if it maintains a fixed position relative to the surface of the earth, we have our proof that the earth rotates. But either way, if you want to keep a satellite at an orbital altitude of 22,240 miles above the earth, it must make a complete circle around the earth's axis every 24 hours, whether the earth itself makes such a circle or not.

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GEO No, you have no way of knowing that a universe without the sun, moon and stars is going to produce a particular kind of orbit around the earth. That is precisely the point I was arguing previously. If the sun, moon and stars act as additional forces against any object that moves around the earth, then your system needs to be reworked. It is because of **THEM**, along with the earth, that the orbit of a satellite is determined, and that is why your Newtonian formulae work. If you believe it is only the earth, then you must prove it. But I can tell you this: a mathematical formula doesn't prove anything for you.

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AC Of course. The only force acting on a satellite in orbit is the force of the earth's gravity. It's true that because earth's mass isn't uniformly distributed, there are minor fluctuations in the gravitational field, and this can cause minor variances in the satellite's orbit. But that's why satellites carry an on-board propulsion system with enough fuel to make minor adjustments to its orbit for many years.

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GEO You say, "Of course. The only force acting on a satellite in orbit is the force of the earth's gravity," but you don't know that, you only assume it. Why can I say this? Two reasons: (1) You can't explain what gravity **IS** (all you have given is a mathematical formula of the results of some force that seems to attract objects), so how can you tell me Earth's "gravity" is the only force acting on a satellite? (2) you have not provided anything to discount the forces of the stars as being a major factor in satellite operation. You've just assumed that all the forces are from the Earth, but you don't know that.

Now let me take this opportunity to elaborate on the alternative to Newtonian mechanics — with a system that actually explains what Gravity **IS**, rather than just put its results in mathematical formulas, as Newton did.

If the aether theory is correct, then Newton's laws of gravitation need to be understood as the result of the effects of the aether. LaSage (1770) showed, mathematically and physically, that aether exerts a pressure on objects, e.g., pressure on spherical masses like the earth or the sun. On a single sphere the pressure is equal all around the sphere. But when two spherical objects come close to each other, one sphere will block some of the aether from colliding with the other, and vice-versa, which values are determined by their mass and shape. In the LaSage theory,

gravity is a push, not a pull. In effect, all forces are the viscous reaction to change by a displaced aether. The aether wants to maintain stability, but a moving object disturbs that stability, so force is felt. This is why acceleration force feels the same as gravitational force, since they are produced by the same factor – disruption or tension in the aether which the aether seeks to stabilize. (Einstein tried to explain this phenomenon by his Equivalence Principle). Aether theory, after LaSage, and up through Michael Faraday through James Clerk Maxwell, DOES explain why there is gravity, bending of light, and all the other motion phenomena we see on earth and in the heavens, since motion is based on the tension caused by disturbances in the medium.

The constitution of the aether medium would be that coincident with the Planck dimensions found in black holes. Modern science is familiar with such mediums. For example, in *The Very Early Universe* (Gibbons, *et al*, 1983) astrophysicist Markov names the particle he discovered the "maximon," which possesses the 10 to the 94th grams per cubic centimeter associated with Planck dimensions. Also noteworthy in this respect is the work of Dr. Robert Moon, Chicago University physicist, who in his article "Space Must Be Quantized," shows that the prevailing theory that space is a vacuum is not supported by the evidence. The reason? Because space has an impedance of at least 376 ohms, something not predicted or accounted for in conventional science, but coincident with the spatial mediums of Geocentric understanding. Princeton's John Wheeler is credited with being the first to describe what is now called "spacetime foam." It is Wheeler's view that space is occupied by ultra-dense particles. Stephen Hawking has postulated something similar. Both Wheeler and Hawking posit that the "foam" is at Planck dimensions. In an article by J. P. Vigiier, "De Broglie Waves on Dirac Aether" in 1980, he writes: "Since Dirac's pioneer work it has been known that Einstein's relativity theory (and Michelson's experiment) are perfectly compatible with an underlying relativistic stochastic [read *aether*] model." In fact, the Planck dimension of the aether is the reason for the Heisenberg Uncertainty Principle, which principle shows that there is an underlying medium that is undetected (i.e., "uncertain") underlying atomic structures. The "uncertain" dimension is answered by the Planck dimensions of aether. It would have a reaction time around 10 to the minus 44 second and a density of 10 to the 93, which is way beyond nuclear particles.

I would also submit that the 3 degree Kelvin radiation discovered by Pensias and Wilson is not the remnants of the Big Bang at all, but is more likely the subatomic vibration inherent in this Dirac aether or Wheeler-Hawking "foam."

The Planck dimension of the aether allows for the instantaneous effects of gravity over vast distances (which has been clearly demonstrated by the instantaneous reciprocity of the gravitational effects between the earth and the sun) – something that neither Einstein nor Newton could not account for, since their limit of velocity is that of light. Einstein had to create General Relativity theory to account for the gravitational and acceleration effects that Special Relativity did not account for.

As I said earlier, the weight of an object on earth is determined by how many corpuscles of aether are hitting it from above as opposed to below. This also explains why atomic clocks in the upper atmosphere run 46,000 nanoseconds faster than at ground level. (Einstein attribute such anomalies to Relativity; non-Einsteinians attribute it to less dense aether). Because of its physical, not theoretical basis, the LaSage theory can account for the peculiar behavior of pendulums just before an eclipse or within deep mine shafts, and these movements were actually

predicted by LaSage, whereas Newtonian and Einsteinian theories did not account for them. In fact, the ultra-sensitive Cavendish torsion balance has detected discrepancies of up to .37% in the inverse square law proposed by Newton, yet accounted for by the LaSage model with no discrepancy. The Cavendish torsion balance has also calculated a variation in the speed of falling objects, opposite the Galileo “Pisa” experiment. Those objects that are elongated fall slower than those not elongated. The LaSage theory explains this, since the aether is hitting more surface area of the elongated object.

As Ernst Mach showed, centrifugal forces need not be explained by a rotating earth but by the average rotational effect of distant masses such that earth is treated as being at rest. Einstein tried to answer this by postulating that Newtonian forces are a result of field gravitation in the “distant rotating masses.” Geocentric theory takes the same “distant rotating masses” and says that they are moving with respect to a stationary earth. Moreover, the rotating cosmic mass around the earth induces the rotational gravitational field (which Newton understood to be a centrifugal force).

As I stated previously, Einstein admitted (*Einstein: The Life and Times*, p. 80) that he had two choices due to the Michelson-Morley experiment of 1887. Either he accepted that the earth was standing still (thus proving there was absolute motion), or he could invent a whole new physics which would make everything non-absolutistic, except the speed of light (since the MM experiment said the speed of light was constant). Einstein opted for the non-absolutistic because he did not want to abolish Copernicanism. To him and his colleagues, that was “unthinkable.”

As a result, he was forced to propound absurd corollaries to his Relativistic world, such as the twin paradox, shortening of lengths, increase in mass, warping of space, creation and annihilation of atomic particles, no explanation for the speed of gravity, the Equivalence Principle, etc., in order to maintain his theory. To give credibility to his theory, he tried to make it look like $E=mc^2$ was a result of Relativity, but he totally ignored Michael Faraday’s $c^2=E/m$, or J. J. Thompson’s $E=4/3mc^2$ or Olinto De Pretto’s $E=mc^2$, who all developed their formulas before Einstein, and all without reference to relativity theory. (Einstein himself showed in private notes that the $E=mc^2$ formula could be derived from mathematics totally devoid of Relativity). They all based their understanding on aether. And as I noted above, Sagnac in 1913, Michelson-Gale in 1925, Miller in 1933 and Ives in 1941 all proved the existence of some type of aether, but this is all ignored by Relativists and filed away in the storehouse of inconvenient facts.

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AC Not really. Thrust is only required to maintain speed if there’s some force acting to retard that speed, which there isn’t in space. Once a satellite is accelerated to its proper orbital velocity by a booster rocket, its inertia will carry it around the earth for years. Haven’t you noticed that space stations like *Mir* and the *International Space Station* orbit the earth for decades even though they don’t have an engine?

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GEO Yes but they don’t maintain the same speed. The orbit decays bit by bit. The only reason *Mir* could stay up is that it kept lowering its orbit to compensate for the slowing of its speed. That would never work for a GSS that depends on keeping the same orbit so that it can transmit the same signals to Earth each second. For the GPS, I already quoted to you the statement from the *Physics Today* article which states that in order to keep a Keplerian orbit the GPS must speed

up and slow down at regular intervals.

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AC Both “centrifugal force” and “Coriolis force” are fictitious forces that are the by-product of measuring coordinates with respect to a rotating coordinate system. They aren’t actual “pushes” or “pulls” acting upon the satellite, and so they don’t require any thrust to overcome. Further, all geosynchronous satellites orbit at the equator, and there’s no Coriolis force at the equator (which is why hurricanes, whose rotation is a result of the earth’s rotation, can’t form within 500 miles of it).

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GEO Yes all GSS are centered at the equator, but you can’t prove that the rotation of a hurricane is the result of the rotation of the earth. If you want to use that model, the effect could just as well be from a revolving universe and a stationary earth, so a hurricane direction doesn’t prove your theory. Be that as it may, hurricanes form in tropical regions where there is warm water (at least 80 degrees Fahrenheit / 27 degrees Celsius), moist air and converging equatorial winds. Most Atlantic hurricanes begin off the west coast of Africa, starting as thunderstorms that move out over the warm, tropical ocean waters. They move out over the Atlantic Ocean to build into tropical storms and then hurricanes. While they are over the Atlantic near the equator, hurricanes are pushed toward the U.S. by trade winds. Trade winds are very consistent westward winds near the equator. Once the storm rises up toward latitude of 25 or 30 degrees (the top of Florida lies at latitude 30 degrees), the trade winds are no longer a factor and local weather over the United States has a big influence. Winds along the east coast tend to blow in a north or northeast direction, and there is also the eastward-blowing jet stream. These winds often cause a storm that comes in from the west to appear to track right up the east coast, or to approach the east coast and then back off. Any number of fronts or pressure zones may be in place over the U.S. as the hurricane comes in, and these systems have their own winds that can significantly influence a hurricane as well. Thus, the direction of the winds, which is always the same in the respective hemispheres, is what causes the directional swirling of a hurricane. As for the relationship between Coriolis and water current direction, I cover that a few paragraphs below.

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AC Well, that’s exactly what heliocentrism asserts. It asserts that the stars are an inertial frame of reference and that the earth moves and rotates within this frame. It is geocentrism that denies the stars form an inertial frame of reference. In geocentrism the earth itself is an inertial framework. Everything else is in non-inertial acceleration.

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GEO No, that’s not what I meant. I realize that heliocentrists refer to the “fixed stars,” but what I am saying is that they do not account for the forces of these cosmic masses on the principles of motion we see on earth. They just assume that everything is due to the Earth’s forces. But not only have they not explained to us what Gravity IS, the very theory of Relativity they espouse says that they can’t make the earth the one and only isolated system, since, as Lense-Thirring told us, the same exact effects can be expected by a stationary earth and a revolving universe.

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AC And I still say that unless you can prove the existence of a hypothetical gravitational force that just happens to precisely balance the earth's gravity at an altitude of 22,240 miles, which by a remarkable coincidence is exactly the altitude at which a satellite would orbit the earth once a day, a stationary satellite over a stationary earth is an impossibility.

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GEO You need to back up your insistence that earth moves with proof. It is not I who claim to be able to empirically prove geocentricity. My contention is that no one can prove Heliocentrism, and therefore we are not obliged to interpret passages from the Bible concerning the sun's movement as being metaphors; nor do we have to apologize for our Catholic Church when they officially rejected, by the mouths and signatures of two popes, against Copernicanism; nor do we have to apologize for the Fathers of the Church as being nincompoops for believing that the sun went around the earth when they were going against the Greeks who espoused Heliocentrism. Since science's own theory of Relativity says we can't prove which body moves against another body, then all this talk about Heliocentrism is just that, talk.

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AC I don't understand your use of terminology here. An "inertial framework" is simply a coordinate system that is not accelerating. Either it's moving at a constant velocity, or it's stationary. Therefore, I don't understand what you mean when you say "the gravity of the stars ... provide[s] the inertial framework for any moving object on or near the earth." In a true inertial framework, all objects will obey the law of inertia and they won't spontaneously change their velocity in response to apparent forces. Only real forces will alter their velocity. That's yet another way we can demonstrate that the earth moves, by the way. The rotation of hurricanes, deflections in long-range projectile motion, etc., are caused by the "Coriolis effect," which is an inertial (i.e., apparent) force, the existence of which proves that the earth is not an inertial frame of reference but is in motion. If your theory were right, there would be no inertial forces on earth and it would be unnecessary to compensate for the earth's rotation when targeting ICBMs, for example.

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GEO First, even if there was such a Coriolis effect, you have no way of proving whether it is attributable to the earth rotating or the stars rotating against a stationary earth. Second, the Coriolis force you are proposing has inherent contradictions. If you claim that projectiles must be adjusted due to the earth's rotation, then this means that flying objects fly independently against the rotation of the earth. If that is the case, then an airplane traveling from NY to LA, against the rotation of the earth, should arrive many hours before a plane traveling from LA to NY, but that is not the case. All other things being equal, both planes take the same amount of time to arrive at their destination. Now some scientists try to explain this by claiming that the planes are within the "envelope" of the earth's gravity, but then they have no explanation why ICBM's, which are also in the "envelope," must compensate for the earth's rotation. (Yet I would submit that the textbooks which claim they are compensating for the Coriolis effect do so in the context of two moving objects, not against the Earth).

Here's another variation of the same problem. If the Coriolis applies to the rotation of the earth, then why doesn't the atmosphere (the clouds, especially) react in a Coriolis fashion relative to the Earth? For example, if the earth is rotating at 1,000 mph, should there not be a constant east-

to-west drag on the atmosphere so that clouds are always moving at rapid speed from east to northwest, west, or southwest, but never from west to northeast, east, or southeast? Due to the your Coriolis effect, the clouds should always be moving away from us, and with motions at variance with the Earth. But that is not what we see. We often see clouds motionless in the sky for hours. How does modern physics explain this? They do so by claiming that the atmosphere is in an “inertial envelope” within the earth’s gravity. They are forced to this conclusion, for to postulate otherwise would leave them without an explanation for the movement of clouds. But if the atmosphere is in an “inertial envelope” with the earth, then how is that possible if projectiles shot from a stationary cannon must supposedly compensate for the Coriolis effect in order to hit their target? You can’t have it both ways. If the Coriolis effect is true for your concept of the cannon projectile, it must be true for the clouds, since both are within the earth’s gravitational envelope. It seems like either way you go on this one, you’re going to stick a foot in the quicksand.

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AC At any rate, your claim that the gravity of the stars acts on “any moving object on or near the earth” is a disproof of your own theory. The stars move from east to west in both hemispheres, and therefore their gravity cannot account for the fact that the Coriolis effect works in the opposite direction in the southern hemisphere than it does in the northern hemisphere.

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GEO No one has ever proven that circular currents always go in opposite directions in the respective hemispheres, nor has anyone proven that the Coriolis causes said directions. That is a myth pure and simple. I have reams of documentation on that. It’s the same myth regarding water going down a drain counterclockwise in the northern hemisphere and clockwise in the southern hemisphere. It is a proven fact that water does not always go counterclockwise in the northern hemisphere and clockwise in the southern. The direction of spin has only to do with the shape of the container, the original direction of water, the tilt of the container, and other such ambient issues. Most honest scientists who know anything about Coriolis will tell you that the forces of Coriolis caused by a rotating earth would be much too small to effect the way water goes down a drain or how hurricanes form their direction. In fact, I just recently had a friend of mine in Australia do an experiment with his drain. He wrote back and told me that each time the water went down, in an undisturbed and level tank, it went counterclockwise the very direction you claim that is supposed to happen in the northern hemisphere only. There are tons of articles on this issue. Most scientists say it has nothing to do with Coriolis or a rotating earth. What makes water or wind go in one direction or the other is a combination of a variety of forces, none of which is the Coriolis effect. Attributing the direction of water currents to Coriolis is similar to the claim that the gravity of the moon causes the tides. Both forces are simply too weak to do what is claimed for them.

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AC Further, if the stars are exerting a force strong enough to hold a four-ton satellite in a stationary position above the earth, they would also exert nearly the same force against satellites in lower orbits. But no such force is observed. Their motion is completely accounted for by the simple laws of universal gravitation.

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GEO No, that can't be proven either, since your "formulas" of gravitation would already take into account the forces from the stars without knowing it. Just because the math works does not mean you know what constitutes the components in reality. All you have is a formula, but whether you know if it contains just one force (the earth) or a multitude of forces (earth and the cosmic forces) you simply cannot prove.

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AC Further, when the *Apollo* spacecraft went from the earth to the moon, its velocity was completely accounted for by the gravitational attraction of the earth and the moon. (The spacecraft was continuously decelerating as it moved away from the earth until it reached a point where the lunar gravity was stronger than the terrestrial gravity, at which point the spacecraft started to accelerate toward the moon). If the stars were exerting the same force on the *Apollo* spacecraft that they allegedly exert on a geosynchronous satellite, the Apollo spacecraft would have been going significantly faster than expected when it reached the moon.

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GEO Glad you brought this up, because using your own logic, the moon causes more problems for you than you think it does for me. There is a neutral gravity zone between the Earth and the Moon. NASA writes: "On a direct line from the Earth to the moon, equal gravitational effects would be found at approximately 216,000 miles, given a mean distance of 240,000 miles between the two bodies" (Wash, DC, 4-5-1990). Despite this, most scientists, in order to explain the tides, believe that the gravity of the moon somehow bursts through the neutral gravity zone (24,000 miles from the moon), and reaches all the way through the next 216,000 miles of earth's gravity to grab hold of the earth's water and pull it up each day! Yet Franklyn Branley in *The Moon: Earth's Natural Satellite* says: "The tide-raising force of the moon is very small indeed, compared to the force of gravity. The tide-raising force of the moon is about 1/9,000,000 that of the earth's gravity" (p. 85). Gee! 9 million to one. Some force! That couldn't even pick up a feather on the earth, let alone oceans of water. Obviously, gravity doesn't explain the tides.

Here's another anomaly for you. The fact that the earth supposedly rotates at 1000 mph at its equator exerts a force on objects to fly off the earth. Science claims that gravity holds the objects on the earth so they don't fly off. But compare this. On the moon, the gravity is one sixth of the earth's. Apparently, the men who walk on the moon need only a proportional amount of weight in their suits to simulate earth's gravity. But the moon does not rotate, and therefore there is no centrifugal force to throw them off, and therefore they would not need to have additional weight in their suits to reach a simulated earth gravity, since the centrifugal force created by going around at 1000 mph is far greater than one sixth the earth's gravity. Gravity, without a compensating centrifugal force on the non-rotating moon would flatten them like a pancake. What this means is that in comparison with the non-rotating moon's gravity, the earth cannot be rotating.

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AC As I've already said, a satellite in orbit encounters almost no resistance to its motion, not from "centrifugal effects," not from "Coriolis effects," and certainly not from "tidal forces of the stars," which would be quite negligible given their distance. That's why a space station like Russia's *Mir* was able to stay in orbit for decades without an engine. There was almost no force acting against it to retard its motion. (Because of its relatively low altitude, there was some

minuscule atmospheric drag on the station, which eventually brought it down, but if it had been orbiting at a geosynchronous altitude, it would have orbited probably forever.)

GEO You have no way of proving what kept it up there. Your answer is inertia, but that is also a fictitious force. Newton never explained why a body had inertia or momentum. The only thing he did was give us a mathematical formula to predict how the moving body would act. But WHY it acted the way it did, neither he nor anyone in his camp has ever explained. Besides LaSage and the aether theory, the only one to attempt it has been Einstein. Einstein said that the physical characteristics of a moving body were caused by its warping of space, which caused the gravitational effects we feel. But, as I've cited earlier, both Newton and Einstein have anomalies in their theories that cannot explain much of what we see in the earth. Even Einstein's famous proof, the perihelion of Mercury, was a sham. Mercury was the only planet he came close to getting right, and that was probably by accident. Of the other five planets upon which the Relativity test was made, Einstein's theory was way off. He even had the precession of one planet going the opposite direction. But again, those facts are filed away in the "inconvenient" drawer.

AC I don't get it. You complain (wrongly) that orbital motion is caused by "centrifugal force," which is a fictitious force, but then you explain the motion (or lack of it) of a geosynchronous satellite by appealing to "inertial force from the stars"? Surely you know that the phrase "inertial force" means "fictitious force," don't you?

GEO In your system it is fictitious because you believe only in relative motion. You have no absolute motion in your system. You can't have a real centrifugal force if you believe all bodies are in relative motion, since the supposed centrifugal force can be exchanged from one body to another. That's what Einstein's relativity is all about. But in my system, the centrifugal force is real, because I have one point in the universe which is stationary, and that is the Earth. Everything else moves. Thus, when I say the stars have an inertial force, that is because the stars are measured against a stationary Earth.

AC At any rate, don't you think it's a rather remarkable coincidence that the alleged "inertial force from the stars" just happens to precisely balance the gravity of the earth at exactly the same altitude at which a satellite would orbit the earth once a day if the earth rotated? Doesn't that raise a red flag for you? It sure does for me. Sounds like wishful thinking.

GEO No, red flag. Your math works, but so does my math. But whose math represents reality is another story altogether. If the GSS can be explained from the perspective of Planck-dimension aether in a rotating universe – an aether that was supported by some of the best minds in physics until Einstein decided arbitrarily to reject that the earth was standing still – then I have no red flags at all. But I'll tell you who should have red flags, however. You! Unless you can adequately explain the anomalies of the GSS that I posed to you in the beginning of this essay (anti-Keplerian motion; Earth-fixed calculations in repositioning; Earth's rotational

perturbations) then I think it is you who has the problem. All your system really has is mathematical formulas, but your system doesn't explain much of how things work. You should also see a red flag when you notice that all the Church Fathers were Geocentrists; the Church officially condemned Copernicanism by two Popes in formal decrees; the Bible says the earth stands still and the sun moves; and no one has ever proved Heliocentrism scientifically, nor does Relativity ever stand a chance of doing so.

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AC The moon does pull on the satellite, but the effect is negligible. Recall that the gravitational attraction between two bodies is proportional to the product of their masses, and inversely proportional to the square of the distance between them. The earth and the moon are both quite massive, and so they exert significant gravitational forces on each other. But a satellite's mass is negligible in comparison. *Telstar 6*, for example, weighs just 3,700 kg. Assuming that this satellite is orbiting at a geosynchronous altitude of 35,870 km, it's easy to calculate that at the point in its orbit where it's closest to the moon the gravitational force exerted on the satellite by the moon would be a whopping 15 grams. That's half an ounce. And that's why you can neglect the gravitational attraction of the moon when you plot a satellite's orbit.

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GEO Half an ounce! You just wiped out science's only explanation for the tides, since obviously, a 15 gram force could never lift millions of tons of water to make the tides on earth. Your system is just filled with these kinds of contradictions.

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AC These days we put them there for saying that the earth doesn't rotate. :-) But seriously, I don't see why you have a problem with the idea of relative motion. We use such ideas all the time. For example, if you want to design an airplane you don't have to test your wing by moving it through still air at a hundred miles per hour. Instead, you can treat the airplane as fixed and use a wind tunnel. The result is the same either way. The wing will fly if air goes over it at a certain relative speed, and it doesn't matter whether that's caused by the motion of the airplane or the motion of the air itself. That's why pilots tie their planes down.

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GEO Poor example. The GSS technician using Earth-fixed calculations to reposition the GSS isn't practicing or simulating. He's doing it for real, on the spot, while the GSS is 22,236 miles high. As you can see, you haven't proven your case for Heliocentrism.

Earth at the center

AC If the Earth is at the center of the solar system as you believe, what is the arrangement of the other major bodies in the solar system? Specifically, do the other planets also orbit the Earth, or are they in orbits around the sun as it orbits the Earth?

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GEO The other planets orbit the sun; while the sun and planets orbit the earth. This was the model developed by the astronomer and Geocentrist, Tycho Brahe.

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AC What's the average distance from the Earth to the sun?

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GEO We go by the conventional distance of 93,000,000 miles, unless proven otherwise.

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AC You said the stars were embedded in a sort of shell, and that it was the rotation of this shell that caused the stars to move across the night sky... Are the stars embedded in the surface of some sort of material, like sesame seeds on a hamburger bun? And what's the surface of this material like? A smooth surface, dotted with stars?

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GEO The "material" is what has commonly been known as aether, but other scientists, like Hawking and Wheeler have called it "spacefoam"; Markov has called it "maximons"; others call it different names. All agree that it contains ultramundance particles at the Planck dimensions (far below the dimensions of atomic particles). That space contains these particles was proven by Sagnac in 1913; Michelson-Morley in 1925; Dayton Miller in 1933; and Herbert Ives in 1943.

As for the "shell," the accepted principle in physics known as the Lense-Thirring Effect, and supported by Einstein himself, says that a rotating shell causes centrifugal and Coriolis forces for objects within the shell that are akin to the centrifugal and Coriolis forces we experience on earth. In other words, Lense-Thirring (along with Ernst Mach) shows that the movements some commonly associate with a rotating earth can be understood just as easily, and must be, from the standpoint of a rotating universe. This is especially true in light of Relativity theory, which, by the principle of "co-variance," says that what is true for one system must be equally exchangeable in another system that is directly connected to it.

More on satellites in the claim to prove earth moves

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GEO Reminder. You need to prove that the earth is rotating on an axis and/or revolving around the sun.

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AC Right, and because I think it's easier to prove that the earth is rotating on an axis, that's the approach I've chosen to take.

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GEO As the famous physicist Max Born once said: "Science advances funeral by funeral," since one theory overturns another on a daily basis.

You haven't proven that the earth rotates. All you have done is given a mathematical formula from Newtonian gravitational mechanics that certain men use to send up the space shuttle into orbit, or any object that must travel around the earth.

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AC Right, and using this formula people were able to predict the orbits of satellites decades before the first one was launched. They knew that the higher the orbit, the longer the period. Low-flying satellites would orbit the earth every few hours, higher-flying satellites would take

longer. Knowing this, Arthur C. Clarke hit on a brilliant idea. He published an article in the October 1945 issue of *Wireless World* (Title: “Extra-Terrestrial Relays: Can Rocket Stations Give World-wide Radio Coverage?”) in which he speculated that since the earth rotates once a day it should be possible to put a satellite into an orbit whose period matched that of the earth’s rotation. Such a satellite would appear to hover over a single spot on the earth’s surface. Clarke envisioned a network of three geostationary satellites spaced at equal intervals around the earth’s equator that would make world-wide radio coverage possible. He even calculated the altitude at which these satellites would have to orbit. If you think about it, Clarke’s idea should have been the perfect test of whether the earth rotates. A geostationary satellite, such as he envisioned, should only be impossible if the earth does rotate. Otherwise, when NASA eventually did put a satellite into the orbit proposed by Clarke, one of two things should have happened. If NASA calculated the satellite’s trajectory relative to the earth, wrongly believing the earth was in motion, the satellite would have arrived at its assigned orbit having no orbital velocity at all and it would have dropped like a rock and burned up in a spectacular and fiery crash. Alternatively, if NASA calculated the satellite’s trajectory relative to the fixed stars, the satellite would have arrived at its assigned orbit having the right orbital velocity, but because the earth doesn’t actually rotate, the satellite would have circled the stationary earth once each day. Either way, Clark’s geostationary idea, and everyone’s belief in a rotating earth, would have been vividly refuted.

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GEO Your logic, though it seems flawless to you I’m sure, doesn’t prove the earth rotates. They didn’t send the GSS to 22,236 miles trying to prove Heliocentrism. They already believed in Heliocentrism because it was taught to them all their lives. So they are going to make every calculation thinking that the earth is rotating and the GSS is going 6,856 mph, even though they ALWAYS use a Fixed-earth basis to do the calculations. You may find that convenient, but I find it very revealing, and I will explain more about it later.

But the math doesn’t prove that the earth rotates. The only thing math does for certain is put in proportion the various forces one observes. Newton did not explain what made one object attracted to another. He only showed the results of the attraction in a mathematical formula, and he had to inject his Gravitational Constant in order to do so. Thus, all the formulae you offer don’t prove that the earth rotates.

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AC I’m not saying they do, at least not directly. Those formulae predict the orbital motion of satellites, and the fact that *NASA* is able to send satellites and deep-space probes exactly where it wants them to go based on those formulae proves that the formulae work. They’ve worked for the space shuttle, the Hubble telescope, the *Apollo* moon rockets, the *Mars Pathfinder*, and *Pioneer 10*. They are also able to predict exactly the altitude at which a satellite’s orbital period will match the rotation of the earth, if the earth is rotating: 35,786 kilometers. Arthur C. Clarke knew that 18 years before the first geosynchronous satellite (*Syncom-1*) was launched. The fact that the geosynchronous satellites worked proves that Clarke’s assumptions and Newton’s equations were correct. Your reply that those satellites actually have no orbital velocity at all, but they don’t fall because, well, there must be a magical force of some kind at that specific altitude that just happens to exactly counteract the earth’s gravity is an absurd and, frankly, embarrassing bit of special pleading. If I put forward such a ridiculous assertion in defense of heliocentrism,

you'd laugh me off your computer screen, and rightly so.

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GEO I already explained to you that both the Geocentric math and the Heliocentric math must answer all the motions we see in the sky, and they both do. If I tell you and your friend to go to California, and you decide to take route 66 but he decides to take route 80, both of you will arrive at your destination, but none of you can prove that yours is the only way to California. Any honest mathematician or scientist will admit that, mathematically, he can make Jupiter the center of the solar system, and the math will work! But you and I know that such math is deceiving, since it doesn't represent the reality. You don't seem to understand that Newton's equations also work in a Geocentric framework, and therefore his equations don't prove Heliocentrism for you. The only thing Newton's equations prove is that there are interacting forces which must be taken into consideration when an object is moving.

You say: "a magical force of some kind at that specific altitude that just happens to exactly counteract the earth's gravity is an absurd and, frankly, embarrassing bit of special pleading. If I put forward such a ridiculous assertion in defense of heliocentrism, you'd laugh me off your computer screen, and rightly so." No, I wouldn't. For if you could show me that the view I hold can't work physically or mathematically, rather than resort to objections based on "magical force," I would accept it outright. Unfortunately, you're so locked into Heliocentrism that you can't entertain an alternate view.

Although I will elaborate and explain in more detail what this "magical force" is, in my last post I said that there would most likely be some gravitational or electromagnetic force holding the GSS at 22,236. What is so surprising about that? Aren't gravitational and electromagnetic forces exactly what make all of your Heliocentric motions work? Thus, the only thing deterring you is that you don't like the idea that these gravitational or electromagnetic forces can act in a stationary environment as opposed to a moving one.

Now let me address your questions about the GSS [GeoSynchronous Satellites] in more detail. The science books tell us that all satellites and all planets follow Kepler's law in their revolutions. For example, after describing Kepler's perigee and apogee revolutions, Franklyn Branley in *The Moon: Earth's Natural Satellite*, says: "The velocity of all the planets and all the natural and man-made satellites varies in a similar manner" (p. 23). But here's the problem. GSS are man-made satellites that do not follow Kepler's law, for they are said to travel at the same distance from the earth (22,236 miles) at each moment of revolution. So how is it that all other satellites and planets obey Kepler's laws of motion, except the GSS?

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AC Actually, you're wrong, and your error puts the final nail in the coffin of geocentrism: GEOSTATIONARY SATELLITES DON'T ORBIT IN A PERFECT CIRCLE! They can be thought of as doing so because their orbits are ****nearly**** circular, but the truth is their orbits are slightly elliptical. *Goes-8*, for example, has an apogee of 35,799 km and a perigee of 35,783 km. *Telstar-5* has an apogee of 35,799 km and a perigee of 35,773 km. And *Directv-2* has an apogee of 35,796 km and a perigee of 35,777 km. So these satellites aren't completely stationary relative to the earth. They move toward and away from the earth each day, which makes them speed up and slow down as they orbit. This makes them appear to oscillate in an east-west direction twice each sidereal day. Other factors also effect the orbits of these satellites. For example, since the

geostationary orbital plane is not coincident with the plane of the earth's orbit around the sun (the ecliptic) or that of the moon's orbit around the earth, the gravitational attraction of the sun and the moon act to gradually pull the geostationary satellites out of their equatorial orbit, gradually increasing the satellite's orbital inclination. In addition, the noncircular shape of the earth's equator causes these satellites to be slowly drawn to one of two stable equilibrium points along the equator, resulting in an east-west libration (drifting back and forth) about these points. To counteract these effects, each geostationary satellite has an onboard propulsion system that it uses to periodically correct any changes to its orbit, in order to keep its daily north-south and east-west oscillation within the ground antenna's beam-width. These periodic corrections are known as station-keeping.

These facts present a serious (and I think unanswerable) problem for your geocentric theory, because you claim that these satellites aren't really orbiting the earth. You claim they're just sitting there, suspended motionless in space. How then do you account for the daily relative motion of these satellites? Because their orbits aren't perfectly circular they don't just sit there, they oscillate east-and-west slightly at a rate of two cycles per sidereal day, and they also oscillate toward and away from the earth each day between the apogee and perigee of their orbits. And just to make things especially inexplicable to a geocentrist, each satellite's oscillation is different. *GOES 8*, for example, oscillates toward and away from the earth 16 km every day. *Telstar 5* oscillates 26 km, and *Directv 2* oscillates 19 km. It's easy to account for this motion if the satellites are in slightly elliptical orbits around a rotating earth, but how do ****you**** account for it?

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GEO First, the apogee and perigee calculations that you present for the GSS are not what Kepler proposed for moving satellites. You can prove this by comparing the apogee and perigee of any other satellite, either satellites closer to earth than the GSS or farther away (like *Chandra*). Those satellites have a true Keplerian orbit; orbits with significant swings in their ellipses, but the GSS does not. According to your figures, it has virtually no ellipse at all, and thus its orbit is considered circular by those who designed it. That's what the science books say. According to your calculations (35,799 as opposed to 35,783 miles) there is only a four hundredths of a percent difference between the perigee and apogee. Kepler's elliptical calculations were much, much larger than that. So, I think you've just added more paint around your corner, since your Newtonian and Keplerian math cannot explain why only the GSS satellites do not have the standard Keplerian dimensions of all the other satellites.

Second, if there were any movement in the GSS (and there is, but it is slight) I attribute it to the same Lense-Thirring or Machian effects I have stated before, but which you have refused to address in these dialogues. That effect, which every physicist I know agrees to, is that the SAME EXACT results of movement and forces will occur in the framework of a rotating earth in a stationary star system, or in the framework of a stationary earth with a rotating star system. THERE IS NO DIFFERENCE, but apparently you either don't comprehend that or don't want to accept it. I suggest that you read up on the Lense-Thirring effect. If you do you will find that every motion you submit to me can be explained by something other than a rotating earth, and therefore, you have not proven that the earth rotates, and thus have failed the Challenge. I will elaborate on the Lense-Thirring effect later in this dialogue.

This is rather significant, since Kepler's laws were formulated precisely to support the

Heliocentric system, since Copernicus' original model of planets going around the sun in circular orbits had more problems than the Ptolemaic system it replaced. So what's this tell us? That scientists simply have no explanation for why the GSS satellites work.

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AC Sure they do. For one thing, as I just pointed out, geostationary satellites orbit in a slightly elliptical path. But even if their orbits were perfectly circular, so what? A circle is just a special case of an ellipse (in which both foci overlap). Further, Newton observed that there are four possible orbital paths in a gravitational field: elliptical, circular, hyperbolic, and parabolic.

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GEO First, even if your explanation were true, you have to explain why only the GSS at 22,235 miles has a virtual circular orbit, whereas satellites closer and further away from earth have highly ellipticized orbits. You just can't claim that some orbits are circular and then conveniently place the GSS in that category. You have to have a reason and an explanation for that. Your own reference to *Chandra* forces you to give such an explanation, since now you must explain why the GSS, which is between the highly elliptical orbits of *Chandra* and the GPS, assumes a near circular orbit and defies all the heretofore Keplerian dimensions of satellite orbit.

Second, circular orbits were not part of Kepler's explanation of satellites or planets. The whole reason Keplerian orbits were invented was to eliminate the need for circular orbits, since the Copernican model was more unstable with circular orbits than the Ptolemaic model was with epicycles!

You asked me later in a letter if there was a "red flag." Yes there is, but it's in your camp, obviously, because here you have a satellite that doesn't obey any of the Keplerian laws of orbiting bodies! But I do have an explanation. The GSS are not orbiting the earth. They are hovering over the earth in a gravitational and/or electromagnetic band precisely 22,236 miles above the earth. The next time you look at one of those satellite weather maps on TV which show a stationary earth but clouds moving across it in time-lapse photography, think about this.

=====

AC Okay, let me see if I have this straight. When NASA wanted to put the first geostationary satellite, *Syncom-3*, into orbit back in 1964, its engineers calculated that in order to orbit the earth once every 23 hours, 56 minutes and 4 seconds (a sidereal day), it would have to be put into a nearly circular orbit 22,236 miles high. But unbeknownst to NASA, its assumptions were all wrong. The earth doesn't rotate at all, and so when *Syncom-3* reached its target altitude of 22,236 miles, it didn't orbit at all; instead it just came to a complete stop. Now, ordinarily you would think that at that point it would have dropped like a rock, straight down, in a stunning disproof of the assumption that the earth rotates. But instead, in the most amazing coincidence in the history of the world, it turns out that there just happens to be "a gravitational and/or electromagnetic band precisely 22,236 miles above the earth," and what's more, the mysterious forces emanating from that band just happen to precisely counterbalance the force of earth's gravity at ****exactly the same altitude**** at which a satellite would orbit the earth once a day if the earth rotated. What luck! And so *Syncom-3* didn't fall, but it didn't orbit, either. Instead it was suspended in mid-air by unknown mysterious forces, and therefore NASA never realized that its rotating earth theory was wrong. Are you seriously asking me to accept that as a plausible

explanation of geostationary satellites?

=====

GEO You haven't given proof for the rotation of the earth. That's the point. You can try to base your "proof" on what a *Syncom-3* technician "believed" about a rotating earth, but that's not proof. It's only proof that a man can send up a satellite thinking that the earth rotates (when it actually doesn't) because the math he uses to send it up is GOING TO BE THE SAME as if it was a FIXED-EARTH and a FIXED SATELLITE, especially since the technician doesn't use MOVING EARTH and MOVING SATELLITE calculations to determine his needs. That is what the article from *Physics Today* showed you; and it is what the letter from the *NOAA* showed you. You can choose to assume that FIXED calculations really represent MOVING calculations, but then that just requires you to prove such a transposition exists. I'm certainly not going to take your word for it.

As stated previously, the GPS scientist abandons his Relativity theory in order to use a fixed-Earth for his calculations. You must understand that when they make the calculations for the GPS from a fixed-Earth position, they are not doing it for simulation or practice before they do the real thing. The article in *Physics Today* I gave you states that they MUST use fixed-Earth calculations, because they are the only ones that work. This gives me a chance to answer even better an initial previous question of yours, which concerned the GSS technician who positions the GSS while thinking that it is going 6,800 mph. I have a letter from the Office of Satellite Operations in Washington DC concerning the repositioning of a GSS satellite 10.75 degrees, asking this question: "Is the present movement of *Goes* (a GSS satellite) planned and executed on the basis of a fixed earth or a rotating earth?" The answer, written by Lee Ranne from the *National Oceanic and Atmospheric Administration* on 11-22-1989 (I have her phone number if you want it) says "Fixed earth."

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AC So what? You said yourself that mathematics doesn't necessarily reflect reality.

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GEO Then I take it that you agree with me, and thus any mathematical formula you present to me cannot act as proof of a rotating earth. You've just wiped out about 95% of your position, because about 95% of it is based on math.

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AC When you're dealing with rotating frames of reference, sometimes it's just easier mathematically to pretend they aren't rotating. Thus, if you want to tweak the position of a moving satellite relative to an earth that's moving just as fast, it's simply easier to make the calculation if you pretend they're both stationary. We do this sort of thing all the time. For example, when the Space Shuttle docks with the *International Space Station*, the pilot doesn't have to worry that they're both going around the earth in a huge circle at 17,000 mph. He can (and does) pretend that the Space Station is at rest and that his shuttle is approaching it very slowly.

=====

GEO Let's say for the sake of argument that he uses the Fixed-earth frame just because it's

easier. Here's the problem for you. It means you can't use that math as proof for a rotating earth, since you can't prove whether his use of a Fixed-earth frame actually represents the reality or not. In fact, you have exposed a glaring weakness in your position, since if a Fixed-earth frame works, then what is to compel a critic like me to think that it is not a Fixed-earth in reality? The only reason YOU are compelled to reject Fixed-earth calculation as representing the reality is because your mind has totally accepted the Heliocentric position. But other than your futile attempt at analyzing GSS satellites without acknowledging the Lense-Thirring effect, the only other so-called proof you've presented in your dialogue is a spinning hurricane, which can easily be explained. So if you're going to convince anyone that the FIXED EARTH calculations of NASA do not represent reality, then you better have a lot of other evidence on your side. So far I haven't seen any.

=====

AC Sure he can; he just prefers not to. Did you actually ask him if he "can't" reposition the GSS if he assumes both it and the earth are in motion? Somehow, I doubt that you did.

=====

GEO I think your question reveals that you are quite surprised that the NOAA reposition satellites using only a Fixed-earth model, and wish somehow that they could do it by a moving earth model. But the fact is that they don't.

So what do we have? We have another case where the math doesn't match the reality, only in reverse.

=====

AC Not so. It's not a Copernican belief system that forces people to think geostationary satellites are orbiting the earth, it's the knowledge that if they ****weren't**** orbiting the earth they'd drop like a rock (your desperate appeal to non-existent magical forces notwithstanding).

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GEO As for your "magical forces" comment, even *NASA* itself believes there is a neutral gravity zone between the earth and the moon 24,000 miles from the moon. According to their own mechanics, objects placed there will remain motionless. Is that some "magical" force, too?

=====

AC Also, the people who actually operate the geostationary satellites know that those satellites are in orbit because they know that those orbits are inclined slightly, and that they're slightly elliptical, giving the satellites a daily apogee and perigee. Stationary objects don't have an apogee or a perigee, nor do they have to make station-keeping maneuvers to counteract perturbations in orbits they don't have.

=====

GEO I think you're wrong on all counts. Elliptical orbits and inclinations, due to the Lense-Thirring effect, can be attributed to a non-rotating earth framework. But again, you have totally ignored that principle throughout this discussion, and thus you keep thinking that ellipses and inclinations ALWAYS prove a rotating earth. You think I haven't thought of this before? The only thing I am finding out is that you've never even considered the alternatives until I've

mentioned them to you. Unfortunately, you have such a visceral reaction to the concept of Geocentrism that you haven't been able to even consider its basis in the Lense-Thirring effect, an effect which is held to by your own scientists. I think what you're finding out is that proving the earth rotates is not as easy as you once thought it to be. As I previously mentioned, if the earth is rotating, the GSS must remain in precise synchronization with the earth.

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AC Actually, they can (and do) drift a little, but as long as they stay within the beam width of the ground antenna, there's no problem.

=====

GEO Is that "beam width" calculated on a FIXED-EARTH frame or a moving earth frame? You keep boxing yourself into a corner because you haven't answered the fundamental questions at issue here. I'll deal more specifically with "beam width" below.

The GSS must travel precisely at 6856 mph without deviation. If it slows down just 1/4 mph, it would throw the GSS off my one mile every four hours, or forty-two miles in a week, or 180 miles in a month, or 2,200 miles in a year.

=====

AC Again you're wrong. Remember Kepler's second law. A satellite may slow down as it reaches apogee, but it'll speed up again as it reaches perigee. It's not possible for a satellite to slow down for a week, or a month, or a year unless its orbital period is measured in weeks, months, or years. A geostationary satellite needs to orbit the earth once every 23 hours, 55 minutes, and 4 seconds. If it speeds up and slows down a little during its orbit (which it does because its orbit is slightly elliptical) that's okay.

=====

GEO You don't understand the problem. We're not talking about slowing down or speeding up a satellite for a week, month or year. We're talking about any slight deviation in speed, whether it occurs in ten seconds time or ten-thousand seconds. That deviation is going to throw the GSS off by many, many miles beyond your "beam width." Unless that GSS goes precisely 6,856 mph (never 6,855 or 6,857), and unless the earth remains in a steady rotation, then your GSS is going to be way off.

As I said before, I think such precision is well nigh impossible to achieve, even with the repositioning thrusters. But for the sake of argument, let's say that it can be achieved. Are there any other anomalies which dictate against it? Yes, there is one gigantic one written in all science books that teach about the earth's rotation. All the books teach that the earth does not rotate steadily, but is somewhat spasmodic. The same is true for the moon. In fact, I have a book titled *Newton's Clock: Chaos in the Solar System* by Ivars Peterson (1993) that lists all the perturbations of the earth, moon and other planets. Their motions are sometimes so unpredictable that scientists wonder how the solar system stays together. The author says that Newton himself thought that God had to intrude every so often to "fix" the solar system (pp. 16, 226). The famous physicist Poincare termed it "dynamical chaos." At any rate, the point is that scientists believe that the earth's rotation fluctuates periodically.

AC Good thing, then, that geostationary satellites have on-board propulsion systems to perform station-keeping maneuvers.

GEO Obviously, you don't appreciate or understand what I wrote above. You apparently think that the GSS can predict the future.

So here's the question? How is a satellite that is moving precisely at 6,856 mph going to know when the earth is going to go into a spasmodic rotation? Not only would it have to know it, it would have to speed up or slow down in precise synchronization with the earth. Just one 1/4 mph difference for five seconds would throw it 10 miles off course. Do you know how many TV sets on earth would immediately see fuzz on their screen if that happened? Practically all of them, since dishes from all over the hemisphere are pointing to a specific point in the sky.

AC Actually, there's much less precision required here than you seem to think. I'm sure you've seen houses with DirecTV dishes, haven't you? Well, each of those dishes is aimed at the *Directv 2* geostationary satellite. Do you have any idea how small a target a satellite is from 22,236 miles away, and how impossible it would be to align the dish if it had to be pointed right at it? Do you think Harry Homeowner has NASA come out and align his dish for him? Obviously, the beam from the satellite is wide enough that the antenna only has to be pointed in the general direction of the satellite.

GEO You haven't even begun to answer the question, and it is obvious that you are avoiding it. We're not talking about positioning a dish to capture the GSS that is having no problems. We're talking about receiving a signal from a GSS whose computer thinks it has to maintain 6,856 mph even though the earth suddenly goes into one of its many unpredictable perturbations, and may do so again a week or a month later, yet by some "magic," those GSS can stay up there for months or years without being adjusted. How is that possible with a regularly perturbing earth? The target area for a GPS is only fifteen meters square. Anything outside that, the GPS will not function. That fifteen meters is substantially less for the GSS which are at 22,236 miles.

As for Harry Homeowner, he doesn't adjust his dish. The technician comes out to do it for him. How does the technician do it? He moves the dish until he captures the signal from the GSS, just like you thread a needle. Once the needle is threaded, he doesn't have to worry about it anymore. But in your model, he has a lot of worrying to do, because he never knows when the signal is going to be thrown off by an unpredictable stoppage or speeding up of the 1,054mph rotating earth.

This is the problem you get into with a moving earth. You have no way to make measurements that are devoid of relativity.

AC So what? That's just something you have to live with when you live on a rotating planet that's orbiting a star. Sure, some calculations would be easier if the earth were stationary (and sometimes you can pretend that it is), but it's really not that hard to take into account a rotating frame of reference. I know what I'm talking about when I say this because I have a degree in

Engineering Science and Mechanics from Virginia Tech, and I studied dynamics for several years under Dr. L. Glenn Kraige. So I've had some experience with factoring in a rotating frame of reference when calculating velocity. It's really not that hard to do. In fact, I recall that on one of my exams I had to figure out the velocity vector of an ant walking on a Ferris wheel on a rotating earth orbiting the sun. I got the answer right, too.

=====

GEO I congratulate you on getting the answer right, but it doesn't prove that the earth is orbiting the sun. As for calculating in rotating frames of reference, if it is so easy, then why doesn't NASA and the NOAA use it? Every satellite positioning and repositioning; every rocket blast from the face of the earth; is made from the FIXED-Earth math. Doesn't that make you the least bit curious? As a matter of fact, they couldn't send up a satellite in a moving earth frame, since, because of relativity, they would have no way of calculating which body is moving in relation to the other. From a moving and relativistic frame, there is nothing to hang your hat on, since all the hooks keep moving.

So what appears to be one speed, is really another speed.

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AC Again, so what? Pilots make that kind of calculation all the time. If they're flying into a 20 knot wind, for example, their airspeed indicator will tell them they're going, say, 140 knots, when in reality they're only going 120 knots over the ground. Life is complicated sometimes. We just have to deal with it.

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GEO Apparently, they've conditioned you to the point where you don't even question it anymore. You can do the same thing in your car. If, at the equator, you travel in your car from west to east at 60 mph, your speedometer tells you 60 mph, but, according to relativity theory, you can be considered going at 1,060 mph, since you are moving with the earth's rotation (or, by Einstein's "equivalence principle" you can be considered stationary and the earth moving beneath you at 1,060 mph).

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AC All true. Again, so what?

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GEO Try proving a rotating earth if your main scientist (Einstein) told you that you can't prove whether you are moving at 1,060 mph or the earth is rotating under you at 1,060 mph. You like to appeal to the Relativistic universe when it suits you, but you can't seem to live with the dictates of its principles. Relativity virtually locks you out of proving anything.

In fact, since in the heliocentric system the earth is moving around the sun at 66,000 mph, then you are really traveling at 67,060 mph in your car. And if you add the fact that the sun is supposedly going around the galaxy about 500,000 mph, then you are really going 567,060 mph. And if you add that the galaxies are receding from each other near the speed of light, well, you can see how fast one would be traveling.

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AC Well, this is where a little common sense really helps. We may ****know****, somewhere in the back of our mind, that the velocity of our car relative to the stars is really, really fast, but we shrug and say, so what? We just want to know when we're going to get to Richmond, and so we're content that our speedometer only shows us our velocity relative to I-95.

=====

GEO Here's the problem. According to Einstein, if you are moving near the speed of light, then your mass should be increasing to infinity, but you don't see that happen when you're driving to Richmond, do you? So obviously, we can't be receding from other galaxies at the speed of light; and if that's the case, then Hubble's constant is wrong, and that means that all the other speeds which are dependent on a faster-than-light receding universe (such as the sun going around the galaxy at 500,000 mph and the earth going around the sun at 66,000 mph) are also bogus, since all those speeds interconnect in the Copernican universe.

By the way, Hubble's constant used to tell us that the galaxies were receding away less than the speed of light. But that was when we could only see about 500 or so megaparsecs into the universe. Now that we can see 500 gigaparsecs into the universe, Hubble's constant means that the galaxies are receding at hundreds of times the speed of light. But if the galaxies are receding at the speed of light or faster, then that means we are moving at the speed of light or faster. Obviously, that is not the case. It's no surprise, then, that Hubble's "constant" is being constantly revised. Speaking of Hubble, did you ever wonder why the Hubble space telescope doesn't take time-lapse photography of the earth to prove that the earth is rotating? A curious lacuna for you to answer.

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AC I figure it's either part of a vast government conspiracy to dupe people into believing that the earth rotates, or else *NASA* has better things to do with its resources than try to prove to the six living geocentrists that they're wrong.

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GEO So *NASA's* word is inerrant and cannot be questioned, but we Catholics can dismiss two popes as being in error who made formal statements condemning Copernicanism because they said it denied Scripture (even though we believe that all other official teaching of popes is binding on us); and we can dismiss anyone who would dare interpret literally the numerous Geocentric passages of the *Bible* as being in error (even though we Catholics are prone to interpret many other passages literally which other people think absurd to do, e.g. *Mt 26:26; John 3:5; 20:23; James 5:14; Mt 16:18-19, et al*). How could we ever doubt King *NASA* (even though he can't tell us what gravity IS, nor do any of his calculations work without assuming a FIXED Earth).

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AC Besides, weather satellites take time-lapse pictures of the earth all the time and that doesn't prove anything to you. Why would it be any different if the pictures were taken by Hubble?

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GEO Weather satellites can't prove anything, for either you or me. But one thing I have in

my favor is that I don't have to worry about any perturbations in the earth's rotation or perturbations of its revolution around the sun; nor do I have to worry about maintaining a speed of 6,856 mph in my satellite every second of every day for years on end.

You have no way of knowing that a universe without the sun, moon and stars is going to produce a particular kind of orbit around the earth. That is precisely the point I was arguing previously. If the sun, moon and stars act as additional forces against any object that moves around the earth, then your system needs to be reworked. It is because of THEM, along with the earth, that the orbit of a satellite is determined, and that is why your Newtonian formulas work. If you believe it is only the earth, then you must prove it.

AC No problem. Consider the case where the moon and the sun both line up on the same side of the earth (e.g., there is a solar eclipse). Earth-orbiting satellites continue to follow the same path when they're on the side of the earth ****away**** from the sun and moon as they do when they're ****between**** the earth and the sun and moon. That proves that the effects of the sun and the moon on the satellite's orbit are negligible. Now, your claim that the stars exert a significant influence is more plausible, but just as wrong, as I'll show momentarily.

GEO Solar eclipses DO effect just about everything, including satellite orbits and earth-based motions. That is why, for example, the Foucault Pendulum swung 15 degrees out of its parabola in a recent 1998 experiment done during a solar eclipse, and it has always done so in other solar eclipses. That is why we see the same gravitational anomalies in deep mind shafts. That is why the Cavendish torsion balance detects great discrepancies during solar eclipses. Second, you haven't proven your case. Perhaps you don't know what "Proof" is. "Proof" is not just offering a scenario that seems to work. "Proof" is when you eliminate all other possibilities, and have the verifiable evidence that only YOUR system will work, now or in the future. Moreover, you keep contradicting yourself. On the one hand you claim that the sun and moon have no effect on the satellites, yet, on the other hand, in your system, it is the sun that keeps the earth and other planets in orbit, whose gravitational attraction extends to Pluto 3 billion miles away. How is it possible to have the sun's gravity weak and strong at the same time? It is becoming quite obvious that you make the sun and stars weak or strong depending on what you are arguing at the time.

AC Back to satellites. The only force acting on a satellite in orbit is the force of the earth's gravity. It's true that because earth's mass isn't uniformly distributed, there are minor fluctuations in the gravitational field, and this can cause minor variances in the satellite's orbit. But that's why satellites carry an onboard propulsion system with enough fuel to make minor adjustments to its orbit for many years.

GEO You say, "The only force acting on a satellite in orbit is the force of the earth's gravity," but you don't know that, you only assume it. Why can I say this? Two reasons: (1) You can't explain what gravity IS (all you have given is a mathematical formula of the results of some force that seems to attract objects), so how can you tell me Earth's "gravity" is the only

force acting on a satellite? (2) you have not provided anything to discount the forces of the stars as being a major factor in satellite operation. You've just assumed that all the forces are from the Earth, but you don't know that.

AC I can easily prove that the stars can't account for the motion of actual earth-orbiting satellites. You argue that the "forces of the stars" offset the force of earth's gravity at 22,236 miles. Objects below that point are drawn toward the earth, objects above that point would be drawn away from the earth because the forces from the stars would be stronger than the force of earth's gravity, and the geostationary satellites that are located precisely at the equilibrium point between the two forces don't move at all. But this model is disproved by the orbit of the *Chandra X-ray Observatory*, shown below:

That satellite has a highly elliptical orbit whose perigee is at 86,487 miles – well beyond the alleged 22,236 mile equilibrium point. Now, if your theory were correct, when the *Chandra* satellite passes the point of equilibrium between the earth's gravity and the inertial force from the stars (at 22,236 miles), it ought to keep right on going and never look back. But it doesn't do that. At 86,487 miles, it turns around and heads back to earth. Therefore, even at that great distance, almost **four times** as far away from earth as the supposed equilibrium point between the earth's gravity and the inertial force from the stars, the earth's gravity is still so much stronger than any alleged "force from the stars" that it can turn *Chandra* around and pull it back. But if the earth's gravity is still strong enough at 86,487 miles to reverse the direction of a satellite that's trying to run away, and pull it back to earth, it must also be true that at only 22,236 miles (four times closer to earth) the earth's gravity would be easily strong enough to pull down the geostationary satellites, which aren't speeding away from the earth, like *Chandra*, but are supposedly just sitting there. It seems to me that the trajectory of the *Chandra X-Ray Observatory* offers a direct, empirical disproof of your theory. Clearly, there is no force at 22,236 miles sufficient to overpower the earth's gravity and keep a satellite from being pulled down. If there were, it would also be sufficient to keep the earth's gravity from turning *Chandra* around and pulling **it** down, especially since *Chandra* is four times farther away. Therefore, the fact that the geostationary satellites don't fall proves that they are in orbit, as NASA has claimed all along, and the fact that they appear not to move relative to the surface of the earth proves that the earth is rotating.

GEO First, *Chandra* actually disproves your model, since it shows the necessity of having a significantly ellipticized orbit in the original Keplerian dimensions, the same as the orbits of the other non-GSS satellites closer to the earth. Second, *Chandra* is controlled in its orbit, just like *Voyager-1* or any of the other satellites in the solar system are directed to different courses. It is operated at Cambridge Massachusetts, 24 hours per day, from dishes located in California, Spain and Australia. The operator tells *Chandra* where to point and what to look at. It takes *Chandra* 2.5 days to circle the earth. At its closest point it is 13,000 miles from earth; at its furthest point it is 80,000 miles from earth. It takes thousands of people all over the world to keep *Chandra* working and on course. Third, you haven't proven that the stars don't effect *Chandra*. If you agree that earth's gravity must somehow be counterbalanced by *Chandra*, then according to Lense-Thirring I can just turn that around and say that *Chandra* must counterbalance the effect of the stars in its travels. The Lense-Thirring principle will simply not allow you to make the

earth the sole point of reference. Fourth, I think you misunderstand me when I say “gravitational neutral zone.” I am using that term to describe the Centrifugal effects on the GSS from the rotating stars, as opposed to the Centrifugal effects that you associate with the earth. You will see this explained more below. Fifth, in my last post I have also said that the 22,236 mile band could be an electro-magnetic field. Since we have such things as the Van Allen belts which are electro-magnetic fields above the earth and which contain charged protons and electrons, positing that there is an electromagnetic field at 22,236 miles is not out of the question. There are two bands of Van Allen belts: one between 600-3,000 miles, and another between 9,300-15,500 miles. The protons and electron’s move in flux lines with the north and south poles of the earth. Thus, we have electro-magnetic interaction 15,000 miles above the earth, an interaction that holds particles in a steady stream about the earth; an interaction in which the particles do not fall to earth but are directed by non-gravitational forces. So some kind of electro-magnetic band at 22,236 miles is not some “magical force,” but something well within the bounds of what is known already.

If the aether theory is correct, then Newton’s laws of gravitation need to be understood as the result of the effects of the aether. LaSage (1770) showed, mathematically and physically, that aether exerts a pressure on objects, e.g., pressure on spherical masses like the earth or the sun.

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AC Question: If aether is an actual substance, like air, it will put a drag on spacecraft and planets flying through it, will it not?

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GEO Yes. Light has one too. It’s called the Fresnel Drag. Anything of physical substance has a drag. The Michelson-Morley experiment of 1887, which supposedly showed a null result for aether drag, actually showed a small positive result, even with their primitive equipment. And it was because of the misinterpretation of the M-M experiment, that Einstein was compelled to formulate Relativity to explain the supposed null result. But Sagnac, Michelson-Gale, Miller, *et al*, confirmed the positive results of the M-M experiment, but by that time the Relativists would not hear of it. They systematically suppressed the positive aether drag results. The Shankland report on Miller’s comprehensive experiments is one case in point. Shankland was in correspondence with Einstein, and they were both determined to find weaknesses in Miller’s results, so they used only the results that Miller didn’t publish – the ones pertaining to aberrations due to the equipment and atmospheric conditions. I’m telling you this to let you know that the science establishment is not populated by little angels in white outfits just waiting to give you the facts. They are like any other organization with money and careers on the line for saying what they are told to say.

On a single sphere the pressure is equal all around the sphere. But when two spherical objects come close to each other, one sphere will block some of the aether from colliding with the other, and vice-versa, which values are determined by their mass and shape.

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AC Is this “aether” in motion? Which direction is it moving? Where does it come from that two objects can “block” it from colliding with each other?

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GEO The Sagnac, Michelson-Gale, and Miller experiments all showed that either the aether

is in motion, or that the earth is moving through the aether. Which one is right they cannot say, which is the same problem you are having in trying to prove that the earth rotates.

As I said earlier, the weight of an object on earth is determined by how many corpuscles of aether are hitting it from above as opposed to below.

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AC If that is true, then shouldn't I be able to increase my weight just by lying down, thus increasing the surface area of my body exposed to the aether?

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GEO Well, you'd have to get on a supersensitive Cavendish torsion balance to find out. Since the Cavendish balance found a 0.37% discrepancy in Newton's inverse square law, you would weigh more.

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AC And shouldn't I weigh the same on the moon as I do on the earth?

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GEO No, because the moon is not exposed to as many aether particles as the earth, since obviously it is smaller than the earth.

This also explains why atomic clocks in the upper atmosphere run 46,000 nanoseconds faster than at ground level. (Einstein attribute such anomalies to Relativity; non-Einsteinians attribute it to less dense aether). Because of its physical, not theoretical basis, the LaSage theory can account for the peculiar behavior of pendulums just before an eclipse or within deep mine shafts, and these movements were actually predicted by LaSage, whereas Newtonian and Einsteinian theories did not account for them. In fact, the ultra-sensitive Cavendish torsion balance has detected discrepancies of up to 0.37% in the inverse square law proposed by Newton, yet accounted for by the LaSage model with no discrepancy. The Cavendish torsion balance has also calculated a variation in the speed of falling objects, opposite the Galileo "Pisa" experiment. Those objects that are elongated fall slower than those not elongated. The LaSage theory explains this, since the aether is hitting more surface area of the elongated object.

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AC Again, if weight is determined by the surface area exposed to the aether, shouldn't I be able to alter my weight just by altering my position? Is this why sky-divers fall slower if they lie flat than if they dive straight down? Why doesn't this work on a scale?

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GEO Comparing aether to air is like comparing an orange to the sun. The aether, as I explained in my last post, is at Planck dimensions, far smaller than the distances and reaction times of atomic particles. Because of this density, objects move through aether in wave motions, just as Faraday and Maxwell postulated.

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AC (from before): Well, that's exactly what heliocentrism asserts. It asserts that the stars are an inertial frame of reference and that the earth moves and rotates within this frame. It is

geocentrism that denies the stars from an inertial frame of reference. In geocentrism the earth itself is an inertial framework. Everything else is in non-inertial acceleration.

GEO No, that's not what I meant. I realize that heliocentrists refer to the "fixed stars," but what I am saying is that they do not account for the forces of these cosmic masses on the principles of motion we see on earth.

AC Of course not. Remember that Newton's law of gravitation tells us that the force of gravity is proportional to the product of the masses and inversely proportional to the square of the distance between them. It's true that the stars are quite massive, but they're so far away (except for the sun) that their effect is negligible.

GEO But there are billions of stars, whereas your illustration is dealing only with two objects. The combined mass of the stars has enough accumulation of force to produce great effects on the rest of our solar system. Just one star, Betelgeuse, has a radius from the sun to Neptune. Multiply that by a few billion, billion, and you get a pretty potent force by Newtonian standards. This is especially true when the mass is rotating. To show you these effects, even from men in your own camp, I will quote their works.

Einstein taught that there is a force inside a moving sphere of matter. He wrote to Ernst Mach on June 25, 1913:

If one accelerates a heavy shell of matter S , then a mass enclosed by the shell experiences an accelerative force. If one rotates the shell relative to the fixed stars about an axis going through its center, a Coriolis force arises in the interior of the shell, that is, the plane of a Foucault pendulum is dragged around.

This coincides with Geocentric theory, since it is our belief that the daily rotation of the stars around the earth causes gravity, as well as the Coriolis forces and the Foucault pendulum effect that Heliocentrists are so fond of attributing only to a rotating earth. Einstein is confirming the Lense-Thirring effect. In fact, Einstein cites Hans Thirring in his 1914 paper. He writes:

Let the earth be a coordinate system rotating uniformly relative to the universe. Then centrifugal forces would be in effect for masses at rest in the universe's coordinate system, while no such forces would be present for objects at rest with respect to the earth.

Before I quote the rest of the section, let me pause here to say that in the Geocentric framework, the GSS is precisely the kind of object about which Einstein is speaking – at rest with respect to the earth, but viewed as having a centrifugal force acting on it with respect to the universe.

Einstein continues:

Already Newton viewed this as proof that the rotation of the earth had to be considered as "absolute," and that the earth could not then be treated as the "resting frame" of the universe. Yet, as E. Mach has shown, this argument is not sound. One need not view the existence of such centrifugal forces as originating from the motion of the earth; one could just as well account for them as resulting from the average rotational effect of distant, detectable masses as evidenced in the vicinity of the earth, where the earth is treated as being at rest.

There you have it. The very person who formulated Relativity to save the world from having to abandon Copernicanism, admits that Newton was wrong in saying that the earth could not be

used as a resting frame for the rest of the universe. In effect, Einstein admits, via Mach, that the centrifugal force on an object in the earth's rest frame is inadmissible as evidence of the rotation of the earth, for in the earth's frame, that force arises from "the average rotational effect of distant, detectable masses." Thus, Einstein is saying the same thing I'm telling you, only I'm applying it to the GSS, as well as showing that you can't prove a rotating earth using the principles of physics admitted to by Einstein himself.

There's more. Einstein then admits that "the required equivalence appears to be guaranteed by the general co-variance of the field equations"

Here is another startling admission, one that Einstein cannot avoid due to the fact that his own postulate of "co-variance" forces him to say that Mach's results are "GUARANTEED" by Einstein's own equivalence principle – the principle I cited to you earlier that says one cannot say whether his car is traveling 1056 mph westward, or that the earth is rotating 1056 mph eastward. Thus, when I say that the "mathematics is the same" for you and me, this is what I am referring to, Einstein's own principle of co-variance. In other words, Einstein's own equations are such that they explain the origin of the necessary force required to keep the GSS in its stationary position above the earth!

Hans Thirring, after ten pages of the same tensor calculus that Einstein used for Relativity, shows that

By means of a concrete example it has been shown that in an Einsteinian gravitational field, caused by distant rotating masses, forces appear which are analogous to the centrifugal and Coriolis forces.

In their book, *Gravitation*, authors Misner, Wheeler and Thorne show the magnitude of the force from the stars. They say on pages 547-548 that there is a rotational drag caused by the stars, and that the angular velocity of that rotation must be identical to the angular velocity of the Foucault pendulum. Thorne is Cal Tech's black hole and general relativity expert; while Wheeler and Misner taught at Princeton, Cal Tech and Oxford. All three of them approvingly cite the work of Hans Thirring, famous for the Lense-Thirring effect about which I have been telling you from the start of these dialogues.

There's more. In their book *General Relativity and Gravitation* (vol. 21, no. 2, pages 109-110, in 1989), Gron and Erickson, in the article, "Translational Inertial Dragging," write:

The rotational inertial dragging effect, which was discovered by Lense and Thirring, was later investigated by Cohen and Brill and by Orwig. It was found that in the limit of a spherical shell with a radius equal to its Schwarzschild radius, the interior inertial frames are dragged around rigidly with the same angular velocity as that of the shell. In this case of 'perfect dragging,' the motion of the inertial frames is completely determined by the shell.

So here it is again. The rotating shell determines the centrifugal and Coriolis effects on an object within the shell. This is precisely what Geocentricity is saying – the rotation of the stars in their "shell" causes the forces you see on earth. This is not me saying it. It comes from the very scientists who are stuck with – admitting it due to their co-variance equations and the hard facts of the physics of rotating shells. Gron and Eriksen also say: "...with reference to Newtonian mechanics we talk of inertial force fields in accelerated reference frames. However, according to the general principle of relativity, we may consider the laboratory as at rest. We then talk of gravitational dragging fields. The concept of 'inertial forces,' which may be regarded as a sort of trick in Newtonian mechanics, is thereby made superfluous."

Notice that Gron and Eriksen admit that the Newtonian centrifugal force due to inertia is a “sort of trick,” that is, it is a fictitious force. This coincides with the Geocentric criticism of Heliocentrism I have highlighted earlier.

Gron and Eriksen say much the same on page 113, where they cite C. Moller from his “standard textbook on general relativity,” which states:

Einstein advocated a new interpretation of the fictitious forces in accelerated systems of reference. The “fictitious” forces were treated as real forces on the same footing as any other force of nature. The reason for the occurrence in accelerated systems of reference of such peculiar forces should, according to this new idea, be sought in the circumstance that the distant masses of the fixed stars are accelerated relative to these systems of reference. The “fictitious forces” are thus treated as a kind of gravitational force, the acceleration of the distant masses causing a “field of gravitation” in the system of reference considered. Only when we work in special systems of reference, viz., systems of inertia, it is not necessary to include the distant masses in our considerations, and this is the only point which distinguishes the systems of inertia from other systems of reference. It can, however, be assumed that all systems of reference are equivalent with respect to the formulation of the fundamental laws of physics. This is the so-called general principle of relativity.

In effect, the authors are telling us that, contrary to popular belief about Relativity, it did not save the world from having to abandon Copernicanism; rather, it made it impossible for Relativity to deny Geocentricity, due to Relativity’s own principles of equivalence!

But also important is that Moller admits that the only reference frame in which we can exclude consideration of the distant stars is in “systems of inertia,” which Gron and Eriksen more carefully define as “frames of reference in which the cosmic mass has no observed rotation or translation acceleration.” Consequently, the earth does not fulfill the requirement for being a system of inertia, since the stars are observed to rotate around it. Hence, Moller shows that we cannot omit the rest of the universe in deriving the forces which act locally on the earth, which is precisely what Geocentricity says!

Gron and Eriksen then add even more devastating news. On pages 117-118 they write:

As an illustration of the role of inertial dragging for the validity of the strong principle of relativity, we consider the Moon orbiting the Earth. As seen by an observer on the Moon, both the Moon and the Earth are at rest. If the observer solves Einstein’s field equations for the vacuum space-time outside the Earth, he might come up with the Schwarzschild solution and conclude that the Moon should fall toward the Earth, which it does not. So it seems impossible to consider the Moon at rest, which would imply that the strong principle of relativity is not valid.

In the next paragraph they reveal the implications of this result:

This problem has the following solution. As observed from the Moon the cosmic mass rotates. The rotating cosmic mass has to be included when the Moon observer solves Einstein’s field equations. Doing this he finds that the rotating cosmic mass induces the rotational non-tidal gravitational field which is interpreted as the centrifugal field in Newtonian theory. This field explains to him why the Moon does not fall toward the Earth.

There is an earth-shattering admission from them, and a devastating dismissal of all your objections. Here’s what they are saying: Since the Moon always shows the same face to the Earth, then from the point of view of the Moon, the Earth is continually hovering 240,000 miles above the Moon. (As such, the Earth is to the Moon what a GSS is to the Earth). The question would be: “Well, what holds the Earth up in the sky? Why doesn’t it fall to the Moon?” Gron and Eriksen show us the answer, and it is in complete agreement with Einstein, Lense-Thirring, Moller, Misner, Wheeler and Thorne, *et al.* It is that the “rotating cosmic mass induces the

rotational non-tidal gravitational field which is interpreted as the centrifugal field in Newtonian theory.” The answer couldn’t be more clear.

But where is the scientific proof that the earth moves?

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AC I have given it. Your theory cannot account for the elliptical orbits of the geostationary satellites. Your only response has been a lot of hand-waving about magical forces that just happen to exist right where your theory has a gaping hole, and that just happen to be exactly as strong as you need them to be to close that hole. But even this lame attempt to prop up the geocentric theory is disproved by the *Chandra X-ray Observatory*, which orbits in a way that wouldn’t be possible if you were right about the existence of a strong “gravitational and/or electromagnetic band” precisely 22,236 miles above the earth.

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GEO You haven’t proven a thing. In fact, your ignoring of the Lense-Thirring principle (which I have also supported from Einstein’s quote of them) means that you haven’t dealt with the most fundamental issue in this whole discussion. I think the above quotes adequately defend the position I am advocating. The ironic thing about all the quotes, however, is that they come from the very sources who have opted for Heliocentrism. They are courageous enough to admit that, according to Einstein’s own principles, Heliocentrism is merely a preference, not a dogma of science. As physicist Hans Reichenbach stated:

...it must be conceded that, from the modern standpoint, practically identical results could be obtained by means of a somewhat revised Ptolemaic system. (*From Copernicus to Einstein*, p. 18)

My contention is that no one can prove Heliocentrism, and therefore we are not obliged to interpret passages from the *Bible* concerning the sun’s movement as being metaphors; nor do we have to apologize for our Catholic Church when they officially rejected, by the mouths and signatures of two popes, against Copernicanism; nor do we have to apologize for the Fathers of the Church as being nincompoops for believing that the sun went around the earth when they were going against the Greeks who espoused Heliocentrism.

Scripture & the Church

AC Now I think we’re getting to the real issue. I strongly suspect that the real reason you think geocentrism is true has nothing to do with corpuscles of aether or Planck lengths, but it’s simply because you believe the *Bible* says the earth doesn’t move. Case closed. But I don’t agree. The *Bible*, like most literature, is full of phenomenological language. That is, it describes things according to their appearance. We do the same thing today when we speak of “sunrise” even though we don’t believe the sun actually rises. (Well, most of us don’t.)

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GEO I dealt with the science because that’s what you presented to me in your objections, so let’s not make this an either/or proposition and accuse me of having some kind of agenda. If you want to now deal with Scripture, then let’s deal with it, but don’t imply that I have some ulterior motive for presenting the science part of this discussion. My inkling after reading your objections is that you’ve never really studied, in depth, the physics of cosmology or cosmogony. All you know are Newtonian formulae that you learned in your Engineering class. Unfortunately

for you, the above physicists have shown that your Newtonian mechanics operates with “fictitious forces.” Because of that, I can turn the tables and say that the only one here who is delving into “magic” and “pseudo-science” seems to be you, for the forces I present to the audience are REAL, not fictitious. I can explain where my forces come from; all you can do is put the results in mathematical formulas – and even at that, they are formulas that have a significant margin of error when tested under macroscopic and microscopic environments.

As for your comment that “The *Bible*, like most literature, is full of phenomenological language,” perhaps you can give us just one other example of phenomenological language used by the *Bible*. The example you give above of the “sun rising” is simply begging the question, for you haven’t proven that the sun doesn’t move as the *Bible* says it does. You can’t prove a thesis with an unproven assumption.

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AC Likewise, the *Bible* says, for example, that the disciples had trouble staying awake because “their eyes were heavy” (***Matt. 26:43***). I don’t think this means their eyes literally weighed more than they weighed earlier in the day.

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GEO First of all, ***Mt 26:43*** is not a cosmological passage. Everyone knows that there are metaphors in Scripture, so merely picking out a metaphor, as you have done, does not prove that you can do so with the passages which say the sun moves. What you need to show is where Scripture regards the cosmological passages as mere metaphors. The problem for you is that there are dozens of passages which all say the same thing, that is, that the earth stands still and the sun and stars move. The Catholic rule of biblical interpretation, ever since the time of the Fathers to Leo XIII’s encyclical on biblical interpretation (*Providentissimus Deus* in 1893), to the 1992 Catechism, is that we interpret Scripture in “its obvious and literal sense,” unless there is a compelling reason to interpret it figuratively. That is why we, as Catholics, have no problem interpreting ***Mt 16:18; 26:26; John 3:5; 6:54; 20:23; Acts 2:38; Rom 5:12; James 5:14*** and many other passages literally, whereas Protestant denominations scorn and ridicule us for doing so. And what, may I ask, is the compelling and indisputable information you have presented in this dialogue that we are to interpret the cosmological passages of Scripture in the figurative sense? It certainly isn’t the GSS, according to Einstein and Thirring.

When we get to this point, Augustine is often cited by Heliocentrists in order to defend their figurative interpretation of *Genesis* and the cosmological passages. (Mark Shea and Clavius have done so on Steve Ray’s board on occasion). But if they would read those sections from Augustine more carefully, they would find he says exactly the opposite of what they are portraying him to say.

Here is the passage that is usually quoted from Augustine’s *The Literal Meaning of Genesis*:

Usually, even a non-Christian knows something about the earth, the heavens, and the other elements of this world...Now, it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics; and we should take all means to prevent such an embarrassing situation, in which people show up vast ignorance in a Christian and laugh it to scorn...Reckless and incompetent expounders of Holy Scripture bring untold trouble and sorrow on their wiser brethren when they are caught in one of their mischievous false opinions and are taken to task by those who are not bound by the authority of our sacred books. (*Bk I, Ch 19, No. 39*).

Seizing on Augustine's words, those like Shea and Clavius chide the literal interpreter, accusing him of "presuming a meaning on Scripture" that in scientific terms is "nonsense," which causes an "embarrassing situation" and a "laughing to scorn" of the "wiser brethren" of Christianity.

In his search for solutions, the literalist retorts that he is not causing an "embarrassing situation," and he can prove it by bringing Augustine to his aid. He will tell Shea and Clavius that they are misconstruing Augustine's words, and that in reality, Augustine's admonition is more applicable to them than the literalist. For Augustine goes on to explain to whom he is applying his words a few pages later. In *Book 2*, Chapters 4-5, the question of the "water above the firmament," described in ***Genesis 1:6-9***, comes to the fore.

These distant waters have been one of the more divisive issues between literalists and non-literalists, since the firmament is, according to ***Genesis 1:14-17***, the heavens in which the sun and stars were placed, yet ***Genesis 1:7*** insists that there are waters above the firmament, that is, above the heavens. The logical question is: if the "water above" is to be taken literally, then when, where, why and how is this possible, for it seems to contradict the prevailing views of science. In answer, Augustine begins by referring to vaporous waters in the air as a possible solution. He writes:

Taking these theories into account, a certain commentator [Basil] has made a praiseworthy attempt to demonstrate that the waters are above the heavens, so as to support the word of Scripture with the visible and tangible phenomena of nature....Hence, from the existence of the air between the vapors that form the clouds above and the seas that stretch out below, our commentator proposed to show that there is a heaven between water and water. This painstaking enquiry is, in my opinion, quite praiseworthy.

But Augustine goes even further in the next analysis, for now he tries to show that there are waters even above the starry heavens. He does so by calling into question the prevailing scientific theories, and in the end, relying on the veracity of Scripture, no matter how hard it may be to accept. He writes:

Certain writers, even among those of our faith, attempt to refute those who say that the relative weights of the elements make it impossible for water to exist above the starry heaven. They base their arguments on the properties and motions of the stars. They say that the star called Saturn is the coldest star, and that it takes thirty years to complete its orbit in the heavens because it is higher up and therefore travels over a wider course.

We notice that Augustine is challenging the prevailing scientific opinion current in his day regarding the nature of stars. Augustine will go on to argue that Saturn, which was then understood as a star, generates heat as it makes its orbit, but that it is cooled by the waters near it, above the heavens, even though some in Augustine's day denied that these waters existed. He writes:

It is true, indeed, that by its own motion, moving over a vast space, it takes thirty years to complete its orbit; yet by the motion of the heavens it is rotated rapidly in the opposite direction...and therefore, it ought to generate greater heat by reason of its greater velocity. The conclusion is, then, that it is cooled by the waters that are near it above the heavens, although the existence of these waters is denied by those who propose the explanation of the motion of the heavens and the stars that I have briefly outlined.

Finally, although admitting he may not have the precise solution to the issue, nevertheless, Augustine maintains that Scripture is the greater authority in this realm, and if it says that the water is there, then it is there:

With this reasoning some of our scholars attack the position of those who refuse to believe that there are waters above the heavens while maintaining that the star whose path is in the height of the heavens is

cold. Thus they would compel the disbeliever to admit that water is there not in a vaporous state but in the form of ice. But whatever the nature of that water and whatever the manner of its being there, we must not doubt that it does exist in that place. The authority of Scripture in this matter is greater than all human ingenuity. (*Bk 2, Ch 5, No 9*)

Obviously, it was never Augustine’s intention to give an absolute authority to science. All along, although trying to be fair with science, Augustine always had in the back of his mind that Scripture’s propositions had the first place, and only then could one search for a corresponding scientific truth, not vice-versa. Obviously, that is the case with Augustine’s view of the waters above the firmament, since for him, regardless of whether he had the right scientific answer to its location and composition, he affirms that “the authority of Scripture in this matter is greater than all human ingenuity.”

The most penetrating aspect of this bold defense of Scripture is that it is said in a context in which the objector is doubting whether water above the firmament exists at all! Augustine’s answer is simple: We may not know where or in what form it resides, but based on Scripture we know for certain that it exists. This is where Augustine starts. It is his bedrock of truth. The Scripture said it, and he believed it. [Aquinas said the same thing regarding the superiority of Scripture to decide such matters:

Whether, then, we understand by the firmament the starry heaven, or the cloudy region of the air, it is true to say that it divides the waters from the waters, according as we take water to denote formless matter, or any kind of transparent body, as fittingly designated under the name of waters... *Summa Theologica*, Bk. 1, Ques. 68, Art 3].

Hence we can safely say that, for Augustine, the “embarrassing situation” does not occur when a faithful expositor seeks to take the *Bible* at its literal word and then seek for scientific support, but when the biblical skeptic tries to elevate scientific theory into fact, requiring Scripture to conform to the theory without proof of its validity.

And the real ironic thing about Shea’s and Clavius’ citation of Augustine to support their Heliocentrism is that Augustine was a Geocentrist! So apparently, he didn’t see the “embarrassment” as extending to Geocentrism, rather it was directed to the non-established and speculative beliefs that some Christians were expounding from Greek astronomers, the same thing about which Irenaeus and Hippolytus admonish Christians against. Clavius tried to answer this anomaly by claiming that the Fathers also believed in a flat-earth, but unfortunately Clavius didn’t do his homework, for the only flat-earther among the Fathers was Lactantius. When we couple these facts with the fact that the ones who were pushing Heliocentrism were the Greeks, this means that the Fathers had to cut across the grain of the prevailing beliefs in their world in order to maintain their Geocentric beliefs.

Second, just for your information, the Greek word *Bebaremenoi* used in *Mt 26:43* does not only mean “heavy,” rather, it also means “burdened,” “under pressure,” “weighed down,” etc, and thus, even on a lexical basis, *Mt 26:43* doesn’t support your point.

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AC But if you’re going to insist that the *Bible* teaches a stationary earth, why not go all the way and acknowledge that it also teaches a ****flat**** earth? Why is it okay to interpret phrases like “the four corners of the earth” (*Isaiah 11:12, Rev. 7:1, Rev. 20:8*) and “from one end of the earth to the other end” (*Deut. 13:7, Deut. 28:64, Jer. 25:33*) as metaphors, but it’s ****not**** okay to interpret descriptions of the motion of the sun and moon the same way?

=====

GEO Because when the *Bible* uses such terminology it is referring to the four compass points of North, South, East and West, which are very literal reference markers in anyone's book.

By the way, I couldn't help notice that you said "the motion of the sun and the MOON the same way". The significance of this is that *Joshua 10:13* says, "So the sun stood still and the moon stopped." The problem with this passage for the Heliocentrist is that he believes the sun stands still and the moon moves. But that position does not allow him to interpret *Joshua 10:13* figuratively, because the verse says that the moon was "stopped." It can only be "stopped" if it was already moving, and the Heliocentrist must admit it was already moving, and thus he cannot interpret it figuratively.

=====

AC Regarding the opinions of those two popes, first I'd like to know which two popes you have in mind.

=====

GEO According to the *Catholic Encyclopedia*, here's what the Church did: The *Inquisition* of 1615 in Rome declared the position of Galileo to be "scientifically false, and anti-Scriptural or heretical, and that he must renounce it" (*Catholic Encyclopedia*, vol 6, p. 344). Following this was a decree from the *Congregation of the Index* on March 5, 1616, prohibiting various heretical works, and among them were those advocating the Copernican system. As for the Pope at that time, Paul V, "there is no doubt that he fully approved the decision, having presided at the session of the *Inquisition*, wherein the matter was discussed and decided" (*Ibid*, p. 344). To Galileo's dismay, the next Pope, Urban VIII, would not annul the judgment of the *Inquisition*. The *Encyclopedia* concludes:

That both these pontiffs [Paul V and Urban VIII] were convinced anti-Copernicans cannot be doubted, nor that they believed the Copernican system to be unscriptural and desired its suppression. The question is, however, whether either of them condemned the doctrine *ex cathedra*. This, it is clear, they never did" (*Ibid*, p. 345).

So despite what anyone says, the Catholic Church has never endorsed the Copernican theory and no pope has ever annulled the decrees of Paul V or Urban VIII. The only thing the Church has done is apologized for the treatment of Galileo, but with no official acceptance of his science views.

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AC And I would like for you to show me that they bound the Church to adhere to the geocentric system.

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GEO I never said they "bound the Church to adhere to the geocentric system." I said they condemned Copernicanism in formal and official statements, the same kind of formal and official statements the Church makes on many issues, short of an infallible statement. An encyclical is just as authoritative as what was decreed by these two popes on Copernicanism. Now here's the rub: We find all kinds of apologetic articles saying, "Well, the popes didn't really

mean this,” or “the Church really can’t make such decisions,” or “the Church was really condemning only the manner in which Galileo presented his beliefs,” and all kinds of excuses like that to save face for these popes. Yet hardly anyone has ever considered that perhaps, just perhaps, these popes were guided by the Holy Spirit to give us the condemnation of Copernicanism, yet these same apologists will turn right around and defend even lesser authoritative statements coming from other popes as the gospel truth! That is a contradiction of the highest order, and one I’m not about to engage in as an apologist for the Catholic Church. My position on Geocentrism defends the Spirit’s guidance of the popes. Yours makes them look like fools.

AC Failing this, I’d simply say that getting elected Bishop of Rome doesn’t qualify one as an expert in cosmology.

GEO The simple fact is that Galileo could provide no indisputable proof for his views. All he had was an alternate schema, so says St. Robert Bellarmine whom the Pope consulted before he made his decree condemning Copernicanism.

AC Our faith obliges us to assent to the teachings of the bishops in union with the Pope when they speak definitively on matters of faith and morals, not math and science.

GEO As for your suggestion that the Pope can’t delve into such scientific matters, tell that to Paul V or Urban VIII. They made the decrees. That is a fact of history. For you to say they cannot make such decrees means that you are again making them look like fools, for you are saying that they not only made a mistake about science, but they also made a mistake regarding ecclesiastical protocol! You’ve now convicted them of two glaring errors.

Moreover, according to Pius XII in *Humani Generis*, our faith also obliges us to assent to “matters...taught with the ordinary teaching authority, of which it is true to say: ‘He that heareth you, heareth me.’” Granted, neither Pope Paul nor Pope Urban’s decree were dogmatic definitions on par with infallibility, nevertheless, the Copernican issue was a matter of faith, since Pope Paul, Pope Urban, St. Robert Bellarmine, and every other Catholic prelate involved in the discussion, concluded that treating Copernicanism as a certainty was undermining the authority of Scripture, and thus they had every right to give their condemnations. The only way you could overturn Pope Urban’s decree is if another pope annulled his decision, but that has never happened. You could implicitly overturn it if we had indisputable scientific evidence that the earth goes around the sun, but as you can see from the quotes I have given from Einstein himself, that simply can’t be proven. So, until you find something that has a higher authority than Pope Urban’s decree, then as a Catholic, you are stuck with his decision.

AC However, if you think papal statements are determinative in this area, what do you make of Pope Urban VIII’s statement that the theory of the earth’s motion “had not been and could not be condemned as heretical” (See *Encyclopedia Britannica*, “Galileo”)?

=====

GEO I read the section in the *Britannica* on Pope Urban VIII. It has nothing of him saying “had not been and could not be condemned as heretical.” If you found such a statement in some other place, it is the opinion of the author of the *Britannica*, not the words of Urban VIII.

=====

AC What do you make of the fact that Copernicus’ book was removed from the *Index* of forbidden books in 1758?

=====

GEO It was taken off the list only because the book was edited to eliminate the statement within it that the Copernican theory was a certainty. The *Catholic Encyclopedia* states: “On 5 March 1616, the work of Copernicus was forbidden by the *Congregation of the Index* ‘until corrected,’ and in 1620 these corrections were indicated. Nine sentences, by which the heliocentric system was represented as certain, had to be either omitted or changed. This done, the reading of the book was allowed. In 1758 the book of Copernicus disappeared from the revised *Index* of Benedict XIV.”

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AC As for the Fathers, I see no reason to view them as “nincompoops” because they believed in a geocentric universe (assuming they did).

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GEO There is no “assuming” here. Obviously, you haven’t looked up what the Fathers said about this issue. They all wrote and believed that the sun went around the earth, without exception.

=====

AC They probably believed lots of things that seem silly to us now. But so what?

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GEO Like what? When they were in consensus, what beliefs of the Fathers do we understand as “silly” today? Mind you, I’m not talking about one or a few Fathers who held aberrant ideas. I’m talking about “in consensus,” the term applied to what all the Fathers held as a common belief. Name one.

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AC They were not scientists. They didn’t have geostationary satellites and Foucault pendulums.

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GEO Until you answer the Lense-Thirring effect, and the dozens of scientists, including Einstein, who said that the distant stars in rotation can act upon the earth to produce Coriolis and centrifugal effects, then you really don’t have a leg to stand on with either the GSS or the Foucault pendulum, since both of them can be answered from the standpoint of a non-rotating earth. Looks like the Fathers were way ahead of you and the Heliocentrists of today.

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AC What they had was the deposit of the Christian faith, which was given to show us how to go to heaven, not how the heavens go (to paraphrase Cdl. Baronius).

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GEO I think that quote comes from Galileo.

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AC As St. Augustine put it, “One does not read in the Gospel that the Lord said: ‘I will send you the Paraclete who will teach you about the course of the sun and moon.’ For he willed to make them Christians, not mathematicians.”

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GEO I think you ought to read the passage in context. It’s not talking about whether the other Biblical statements on cosmology are correct or incorrect. It is talking only about the purpose of the Gospel writers to record the redemptive aspects of Jesus’ life. As I noted previously in my review of Augustine’s writing in *The Literal Meaning of Genesis* regarding the waters above the firmament, he said that Scripture’s authority was supreme when it addressed matters of science. The Evangelists were not addressing matters of science, and never claimed to be. That is all Augustine is saying about them.

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AC I urge you to heed the warning of Pius XII in *Divino Afflante Spiritu* (1943) that the true sense of a biblical passage is not always obvious, as the sacred writers made full use of the idioms of their time and place.

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GEO Did Pius apply that principle to interpreting the “sun rising” passages as you did earlier, claiming that they were phenomenological? No, he didn’t. So you don’t know if he was talking about those passages, do you? All Pius does is lay down a general rule – a rule which the Fathers used themselves, and which Augustine mentions quite often in his writings, but none of them ever applied it to the Heliocentric view.

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Inertial framework & more claims for earth movement

AC (from before): I don’t understand your use of terminology here. An “inertial framework” is simply a coordinate system that is not accelerating. Either it’s moving at a constant velocity, or it’s stationary. Therefore, I don’t understand what you mean when you say “the gravity of the stars . . . provide[s] the inertial framework for any moving object on or near the earth.” In a true inertial framework, all objects will obey the law of inertia and they won’t spontaneously change their velocity in response to apparent forces. Only real forces will alter their velocity. That’s yet another way we can demonstrate that the earth moves, by the way. The rotation of hurricanes, deflections in long-range projectile motion, etc., are caused by the “Coriolis effect,” which is an inertial (i.e., apparent) force, the existence of which proves that the earth is not an inertial frame of reference but is in motion. If your theory were right, there would be no inertial forces on earth and it would be unnecessary to compensate for the earth’s rotation when targeting ICBMs, for

example.

GEO First, even if there was such a Coriolis effect, you have no way of proving whether it is attributable to the earth rotating or the stars rotating against a stationary earth. Second, the Coriolis force you are proposing has inherent contradictions. If you claim that projectiles must be adjusted due to the earth's rotation, then this means that flying objects fly independently against the rotation of the earth.

AC A flying object, by definition, is not touching the earth. However, it begins its flight having an initial velocity equal to the rotational velocity of the earth at the launch site. If a missile, for example, is launched from the equator toward the north pole, it will have an initial eastward velocity of about 1,000 mph. As the missile flies northward, the eastward lateral velocity of the earth beneath it will decrease (becoming zero at the pole). But the inertia of the missile will cause it to maintain its initial eastward velocity. This will cause the missile to seem, to an observer on the rotating earth, as if it's veering off to the right because it will be moving toward the east faster than the earth beneath it is. For a simple explanation of the Coriolis effect, complete with animation, go here:

<http://www.windpower.dk/tour/wres/coriolis.htm>

GEO You're not answering the question – the very question you have avoided in this whole discussion. Let me copy it and place it here for you again: "First, even if there was such a Coriolis effect, you have no way of proving whether it is attributable to the earth rotating or the stars rotating against a stationary earth." That, as I have elaborated earlier, is the Lense-Thirring effect.

If that is the case, then an airplane traveling from NY to LA, against the rotation of the earth, should arrive many hours before a plane traveling from LA to NY, but that is not the case.

AC Of course not. That you think it ****should**** be the case makes me wonder if you have a firm grasp of what's involved in rotational dynamics. The reason the rotation of the earth doesn't affect the time aloft of an airplane traveling between New York and Los Angeles, regardless of which direction it's traveling, is because both an eastbound plane and a westbound plane start out with an initial velocity toward the east equal to the lateral velocity of the earth at the airport. If I start out with an eastward initial velocity of 1,000 mph and then head west at 400 mph, simple subtraction tells me that I'll still actually be moving toward the east at 600 mph. Likewise, if I start out with an eastward initial velocity of 1,000 mph and then head east at 400 mph, I'll really be going to the east at 1,400 mph. But because the earth is also going to the east at 1,000 mph, my speed over the ground will still be 400 mph, regardless of which direction I fly.

GEO Yes, from your perspective that is the way it would have to work. The problem with it, though, is twofold: (1) pilots do not chart courses based on the different speeds of the rotation of the earth at different latitudes. New York and LA are at different latitudes, and therefore rotate

on the earth at different speeds in your system. Pilots plot their courses based only on linear distance and wind vectors; and (2) your theory doesn't work with non-propelled bombs dropped from the same airplane. Here's how. Let's say a bombardier, flying eastwardly, spots a building he wants to blow up with a 2,000 pound bomb on the equator from 30,000 high. The bombardier is counting on gravity to take the bomb to the target. His plane is traveling say, 1,054mph, which will allow him to circle the earth in 24 hours. As the bomb is released, the plane's speed would give the bomb a forward thrust eastward, but after about 10,000 feet of falling, the bomb eventually straightens out and falls straight down. So after 10,000 feet, the only force acting upon the bomb is gravity. But if the earth is turning on an axis at 1,054mph, then the bomb must also be going eastward at 1,054mph at the same time it is falling as 32 feet/sec^2 in order to hit the target. So here are the questions: (1) What force is causing the bomb to move at 1,054mph after it has already dropped 10,000 feet and is being pulled straight down by gravity? (2) Why is this force exactly the same at different latitudes, if the earth is rotating at different speeds at these latitudes? (3) Why is this force on the bomb not lessened when, for example, the plane is traveling north or south?

Here's another variation of the same problem. If the Coriolis applies to the rotation of the earth, then why doesn't the atmosphere (the clouds, especially) react in a Coriolis fashion relative to the Earth?

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AC It does. It's the rotation of the earth (and the Coriolis effect) that accounts for the large-scale circulation patterns we observe in the atmosphere. For a detailed discussion of this see:

<http://wings.avkids.com/Book/Atmosphere/instructor/wind-01.html> .

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GEO I already know what the conventional wisdom is. I'm asking you to explain how it can occur the way they say it happens. For example, if the earth is rotating at 1,000 mph, should there not be a constant east-to-west drag on the atmosphere so that clouds are always moving at rapid speed from east to northwest, west, or southwest, but never from west to northeast, east, or southeast? Due to your Coriolis effect, the clouds should always be moving away from us, and with motions at variance with the Earth. But that is not what we see. We often see clouds motionless in the sky for hours. How does modern physics explain this?

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AC Simple. The atmosphere rotates along with the earth. Unequal heating of the atmosphere between the equator and the poles causes north-south circulation, and the rotation of the earth causes hemispherically-dependent rotational circulation.

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GEO In your system, the atmosphere must rotate along with the earth, but that doesn't prove that it does. The fact that clouds can hover over the surface of the earth and not be pulled to ground level means that they can act independently of the earth's gravity and rotation, just as you say that projectiles move independently of the earth's gravity and rotation. You can't say that the clouds are caught in a one-to-one correspondence with earth's gravity and rotation, but then claim projectiles are independent of it and have to be adjusted for the Coriolis effect.

They do so by claiming that the atmosphere is in an “inertial envelope” within the earth’s gravity. They are forced to this conclusion, for to postulate otherwise would leave them without an explanation for the movement of clouds. But if the atmosphere is in an “inertial envelope” with the earth, then how is that possible if projectiles shot from a stationary cannon must supposedly compensate for the Coriolis effect in order to hit their target? You can’t have it both ways. If the Coriolis effect is true for your concept of the cannon projectile, it must be true for the clouds, since both are within the earth’s gravitational envelope.

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AC It is true for the clouds. It’s what causes hurricanes to rotate, and it’s what causes the general rotational circulation patterns in the atmosphere, as explained at the web page to which I referred above

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GEO You think just saying “It is true for the clouds” is going to prove your case? Obviously, you don’t have an answer for this question, otherwise you wouldn’t be resorting to mere assertion to convince me. At other times in this dialogue you’re just gushing with explanations, but here you are rather silent. The reason you are silent is that your system has NO WAY of distinguishing between the movement of a cloud and the movement of a projectile in order for you to claim that one is not dependent on Coriolis but the other is, yet you insist that they are. What a convenient science you have! It reminds me of when you claim that the moon isn’t strong enough to effect the orbit of a satellite, but then you agree with conventional science that the moon is strong enough to lift millions of tons of water on the earth to cause the tides.

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AC (from before): At any rate, your claim that the gravity of the stars acts on “any moving object on or near the earth” is a disproof of your own theory. The stars move from east to west in both hemispheres, and therefore their gravity cannot account for the fact that the Coriolis effect works in the opposite direction in the southern hemisphere than it does in the northern hemisphere.

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GEO No one has ever proven that circular currents always go in opposite directions in the respective hemispheres, nor has anyone proven that the Coriolis causes said directions. That is a myth pure and simple.

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AC Then it should be very easy for you to disprove. All you have to do is show me one hurricane that ever rotated clockwise in the Northern hemisphere, or counter-clockwise in the Southern hemisphere.

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GEO I don’t have to because the trade winds, which always go in the same direction in the respective hemispheres, cause the direction of the hurricanes, not the Coriolis effect. The Coriolis effect is too weak a force to cause such tremendous wind currents. That was my point. Not that hurricanes rotate clockwise in the north and counterclockwise in the south. Moreover, you have to explain why water in a toilet usually goes in the same direction if its not due to the

Coriolis effect.

I have reams of documentation on that. It's the same myth regarding water going down a drain counterclockwise in the northern hemisphere and clockwise in the southern hemisphere. It is a proven fact that water does not always go counterclockwise in the northern hemisphere and clockwise in the southern. The direction of spin has only to do with the shape of the container, the original direction of water, the tilt of the container, and other such ambient issues.

AC I know that. That's why I mentioned hurricanes, not toilets. I'm well aware that the Coriolis effect is much too subtle to have any impact on the flow of water in a sink. But it does effect large-scale events like hurricanes. As I said, if you can show me just one hurricane that rotated clockwise in the Northern hemisphere, or counter-clockwise in the Southern hemisphere, you will have proved your point.

GEO You just trapped yourself. If the Coriolis effect is too weak to cause water to go in a predetermined direction in a toilet, how is it going to be strong enough to make wind and water vapor which is millions of times more massive in a hurricane to go in a predetermined direction? I'm afraid this is even more evidence of those "magical" on-off switches of convenience you have in your theory. Most honest scientists who know anything about Coriolis will tell you that the forces of Coriolis caused by a rotating earth would be much too small to effect the way water goes down a drain or how hurricanes form their direction.

AC That's right

GEO Thanks for the confirmation.

AC That's wrong. I refer you to the National Weather Service's *Glossary of Weather Terms* (<http://www.srh.noaa.gov/lub/safety/glossary.htm>), which says:

In synoptic scale weather systems (hurricanes and large mid-latitude storms), the Coriolis force causes the air to rotate around a low pressure center in a cyclonic direction. The air flowing around a hurricane spins counter-clockwise in the northern hemisphere, and clockwise in the southern hemisphere (as does the earth, itself).

GEO Someone is very much in error here. Even from your own perspective of a rotating earth, the earth does not spin in different directions in respective hemispheres! The person who wrote this article doesn't know what he is talking about. In your system, the direction of the rotation of the earth is only a matter of perspective. Imagine someone who is 5,000 miles tall standing on the North Pole. He leans over a little bit and sees the earth rotating west to east in the Northern hemisphere. Then when he leans over a little more to see the Southern hemisphere, he's going to see the earth rotating in the same direction. The only reason the above author could claim that there are different directions of rotation in the respective hemispheres is that he is imagining a normal sized man standing, in one instant, on the north pole and watching the earth

rotate counterclockwise, and then standing, in another instant, on the south pole and watching the earth rotate clockwise. But the earth is not really going in opposite directions! Its going in one direction only. Moreover, because of the Relativity theory you espouse, you have no way out of this trap, since Relativity demands that the perspective of the 5000 mile-tall man must be able to be equally exchanged between the two hemispheres. In other words, you cannot claim for one hemisphere what you deny for the other.

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AC In both hemispheres, this rotation is called cyclonic. If the earth did not rotate, the air would flow directly in towards the low pressure center, but on a spinning earth, the Coriolis force results in the air arcing in towards the low pressure center. The Coriolis force is of much too small a magnitude to have any relevance to the direction of rotation in a sink or toilet.”

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GEO We’re supposed to believe that the Coriolis effect is “much too small” to effect the movement of a little water in a toilet, but it can control the direction of thousands of miles of wind and water vapor over vast distances and for hours upon end? That is truly “magical.” In fact, I just recently had a friend of mine in Australia do an experiment with his drain. He wrote back and told me that each time the water went down, in an undisturbed and level tank, it went counterclockwise the very direction you claim that is supposed to happen in the northern hemisphere only.

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AC I make no such claim. I’m well aware that the Coriolis effect is too subtle to effect the flow of water in a sink. But it certainly does affect intercontinental missiles and hurricanes.

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GEO You can pick and choose what your Coriolis force effects all you want, but it doesn’t mean a thing when you deny the Coriolis to things of equal importance. So let’s size this up. Your Coriolis force effects missiles and hurricanes, but it doesn’t effect clouds and toilets. And I’m the one said to be working with pseudo-science from the Medieval period?!

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AC (from before): Further, when the *Apollo* spacecraft went from the earth to the moon, its velocity was completely accounted for by the gravitational attraction of the earth and the moon. (The spacecraft was continuously decelerating as it moved away from the earth until it reached a point where the lunar gravity was stronger than the terrestrial gravity, at which point the spacecraft started to accelerate toward the moon). If the stars were exerting the same force on the *Apollo* spacecraft that they allegedly exert on a geosynchronous satellite, the *Apollo* spacecraft would have been going significantly faster than expected when it reached the moon.

=====

GEO Glad you brought this up, because using your own logic, the moon causes more problems for you than you think it does for me. There is a neutral gravity zone between the Earth and the Moon. NASA writes: “On a direct line from the Earth to the moon, equal gravitational effects would be found at approximately 216,000 miles, given a mean distance of 240,000 miles between the two bodies” (Wash, DC, 4-5-1990). Despite this, most scientists, in order to explain

the tides, believe that the gravity of the moon somehow bursts through the neutral gravity zone (24,000 miles from the moon), and reaches all the way through the next 216,000 miles of earth's gravity to grab hold of the earth's water and pull it up each day!

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AC You seem to imagine that this “neutral gravity zone” is like a force-field from *Star Trek* that the moon's gravity can't penetrate. (One wonders how the *Apollo* spacecraft was able to get through it.) But what NASA is talking about here is simply the point at which the earth's gravity and the moon's gravity are in equilibrium. The “neutral gravity zone” doesn't mark the point where the moon's gravity ****ceases to exist****, it marks the point where the earth's gravity becomes ****stronger**** than the moon's gravity. On the surface of the earth, the moon still exerts an influence, but it's small compared to the influence of the earth's gravity. That's why the oceans just bulge a little; they don't go flying off into space. For more on this, see:

<http://www.enchantedlearning.com/subjects/astronomy/moon/Tides.shtml>

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GEO More modern pseudo-science. The only thing “enchanted” here is your belief system. You don't even know what gravity IS (and neither did your mentor Newton) yet you tell me that “On the surface of the earth, the moon still exerts an influence, but it's small compared to the influence of the earth's gravity.” Your “science” at this point is beyond credulity. First, you can't have the moon's gravity causing forces on the earth in the midst of earth's gravity. That's absurd! Any effect of the moon would be totally overwhelmed by the earth. Yet Franklyn Branley in *The Moon: Earth's Natural Satellite* says: “The tide-raising force of the moon is very small indeed, compared to the force of gravity. The tide-raising force of the moon is about 1/9,000,000 that of the earth's gravity” (p. 85). Gee! 9 million to one. Some force! That couldn't even pick up a feather on the earth, let alone oceans of water. Obviously, gravity doesn't explain the tides.

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AC You fail to understand that the force of gravity is proportional to the product of the masses. Both the moon and the oceans are massive, therefore there's significant gravitational attraction between them. A feather has almost no mass, and therefore the moon exerts almost no gravitational attraction on it. (Notice that the earth doesn't either; that's why it's so light.) The gravitational interaction between the massive moon and the massive oceans causes the oceans to bulge slightly (****very**** slightly), but that's all.

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GEO So you're trying to tell me that the moon has a selective gravitational attraction between itself and the oceans, but not to the rest of the earth? Does your gravity have a mind of its own? Perhaps you can explain why Carroll Glines in *The First Book of the Moon*, p. 21 says:

Strange as it may seem, what we normally think of as the solid body of the earth is also affected by the moon, so that it too has a tide. The land-mass of the earth is elastic and actually rises and falls about 4.5 inches. We do not feel these land tides...but they do take place.

Or what Arnold Lieber says in *The Lunar Effect*, (Jacket cover): “...the pull of the moon distorts the earth as if it were a rubber ball. The North American Continent may rise so much as half a foot when the moon is overhead,” or Isaac Asimov in *The Double Planet*, p. 100: “...the earth,

so to speak, is stretched in the direction of the moon. The solid earth does not stretch much, however (only about nine inches on each side), and only delicate measurement can show this stretch.”

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AC The earth’s gravity is so much stronger than the moon’s gravity that the oceans are barely affected by the moon at all. The effect ****seems**** big, if you’re standing on the beach watching the tide come in, but on a planetary scale it’s so small that if you were in the Space Shuttle, I doubt you would be able to discern it with the naked eye.

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GEO Here you go again picking arbitrary points of reference so that you can change the results of what you don’t like, just as you did with the hemisphere issue. I don’t have to be in the Space Shuttle to observe it. I can see the tides rise on earth by about a dozen feet per day standing right next to the ship docks. You couldn’t get a hundred moons circling the earth to cause that much force, since according to Branley each moon would only exert one nine millionth of the force of the earth. Something is way out of whack here, and it only shows me that neither you nor they know what the truth is. Here’s another anomaly for you. The fact that the earth supposedly rotates at 1000 mph at its equator exerts a force on objects to fly off the earth.

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AC That’s right, and that’s why the earth’s gravity is measurably lighter at the equator than it is at the poles. The acceleration of gravity at the poles is 9.83200 m/s^2 , but at the equator it’s 9.78100 m/s^2 . How does your system explain that?

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GEO I can explain it the same way I can explain every motion and force, and to which you have no rebuttal. The rotating stars, according to Einstein and his colleagues, will exert the same exact force on the earth that you attribute to the rotating earth alone. This is an issue which you have totally ignored throughout this discussion. Second, your figures are just a rehash of the “oblateness of the earth” argument, which posits that because the earth at the equator is oblate, this further distance from the center of the earth causes less gravitational attraction. In this scenario, you must claim the stars as your inertial frame of reference which is said to pull the earth out at the equator. C. G. Hood in *The American Journal of Physics* 38(4): 438, in 1970 discovered that if Newton’s laws are formulated using variables measured relative to interacting particles shows that “the law of inertia is no longer required.” In short, the use of variables means that it does not matter which is turning, the earth or the universe, since the results are the same. In effect, Hood’s work reduces Newton’s laws to one law (p. 140). I have deleted the discussion about the centrifugal force in relation to Earth’s gravity, since I concede the point.

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AC (from before): As I’ve already said, a satellite in orbit encounters almost no resistance to its motion, not from “centrifugal effects,” not from “Coriolis effects,” and certainly not from “tidal forces of the stars,” which would be quite negligible given their distance. That’s why a space station like Russia’s *Mir* was able to stay in orbit for decades without an engine. There was almost no force acting against it to retard its motion. (Because of its relatively low altitude, there

was some miniscule atmospheric drag on the station, which eventually brought it down, but if it had been orbiting at a geosynchronous altitude, it would have orbited probably forever.)

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GEO You have no way of proving what kept it up there. Your answer is inertia, but that is also a fictitious force.

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AC Inertia is not a force. Inertia describes what happens to a body in motion in the ****absence**** of a force. That body will tend to keep moving at the same speed, and in the same direction, unless something acts to slow it down, speed it up, or change its path.

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GEO You know I didn't mean that inertia, in your system, was the same thing as the force of $F = ma$. I used "fictitious force" in referring to inertia with the operative word being "fictitious" from our previous dialogue about the centrifugal and Coriolis effect, the same thing that Gron and Eriksen meant when they said that "inertia" was a "sort of trick." Since inertia is part of the grab bag of Newtonian terms, I include it for the sake of reference. I only wish you had been as picky about your logic when you were dealing with why the Coriolis effects hurricanes and projectiles, but not clouds and toilets. Newton never explained why a body had inertia or momentum.

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AC He probably never explained why it has mass or dimension either. But did he need to?

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GEO Yes, because if his math doesn't represent reality, all the math in the world isn't going to tell us what the truth is. Take a simple algebraic anomaly like $x^3 = 8$. There are three solutions to this equation: 2; the square root of $-3 - 1$; and $-$ square root of $-3 - 1$. All of them have mathematical validity, but only one represents reality. If LaSage is correct, then all Newton is good for is putting the results of LaSage gravity into a mathematical formula, but even then there are anomalies in the macroscopic and microscopic levels that Newtonian math doesn't explain.

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AC You prove the existence of inertia every time you step on the brakes in your car. Don't you feel your body pulling forward against the seatbelt? That's inertia.

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GEO But what makes you feel the force against the seatbelt? That's the \$64,000 question that you haven't answered. You can assign any name to the force you want, and you can put the results of it in a mathematical formula, but that doesn't explain to us why it happened. Your system tries to explain everything else that happens in the car, e.g., the crankshaft turns because there is a combustion of fuel; the radio makes a noise because the speaker vibrates against the air; the wheels turn because the steering piston pushes it; etc, etc. Each of these is a PHYSICAL explanation for why things happen the way they do. But when it comes to gravity, you don't have a physical explanation. You rely on some "magical" force that you can't explain and can

only put in a mathematical formula. And you think that once you've created your mathematical formula, then you've discovered one of the secrets of nature. But as long as you don't have a physical explanation for gravity, you really have nothing.

All your system really has is mathematical formulae, but your system doesn't explain much of how things work. You should also see a red flag when you notice that all the Church Fathers were geocentrists.

More on the Church's position

AC I don't ****care**** if they were all geocentrists, any more than I care that they all thought there were only four elements, or that they all thought disease was caused by an imbalance in the humors.

GEO Then I guess it doesn't matter to you that they all believed in an *ex nihilo* creation against the pantheists and materialists; or that the seasons are caused by the sun; or that axe heads don't float on water unless a miracle is performed; or that the Red Sea can't part unless a miracle is performed; or that people can't rise from the dead; or that animals reproduce in their kinds, etc, etc. These are all areas of "science." How could we accept any of these beliefs from them? The Church officially condemned Copernicanism by two popes in formal decrees.

AC Wrong. The Church has never condemned Copernicanism. (See the *Catholic Encyclopedia* article on Galileo.) This is why I and other Catholics feel the need to oppose you on this topic. You are misrepresenting our faith and making it a laughing-stock besides.

GEO Let me quote the *Catholic Encyclopedia* to you again. The *Inquisition* of 1615 in Rome declared the position of Galileo to be "scientifically false, and anti-Scriptural or heretical, and that he must renounce it" (*Catholic Encyclopedia*, vol 6, p. 344). Following this was a decree from the *Congregation of the Index* on March 5, 1616, prohibiting various heretical works, and among them were those advocating the Copernican system. As for the Pope at that time, Paul V, "there is no doubt that he fully approved the decision, having presided at the session of the Inquisition, wherein the matter was discussed and decided" (*Ibid*, p. 344). To Galileo's dismay, the next Pope, Urban VIII, would not annul the judgment of the *Inquisition*. The *Encyclopedia* concludes:

That both these pontiffs [Paul V and Urban VIII] were convinced anti-Copernicans cannot be doubted, nor that they believed the Copernican system to be unscriptural and desired its suppression. **The question is, however, whether either of them condemned the doctrine *ex cathedra*.** This, it is clear, they never did. (*Ibid*, p. 345)

Notice the words "**The question is, however, whether either of them condemned the doctrine *ex cathedra*.**" So the question, according to the *Catholic Encyclopedia*, is not whether the popes condemned Copernicanism, but only whether they condemned it in an *ex cathedra* definition. Understand that the *Catholic Encyclopedia* assures us that they DID condemn Copernicanism, and that is the word I used above – "condemn" – but I didn't say it was *ex cathedra*, I said it was

an authoritative teaching that has not been annulled by any pope since.

So stop trying to make it look like I am saying something different than what the Church has taught. I think you better re-think your Inquisitorial Crusade against me, for unless you have some evidence of an official reversal of the official condemnation of Copernicanism by Pope Urban VIII, then you simply have no evidence to support your contentions against me, especially in light of the anomaly-filled and contradictory science you have offered me in this dialogue.

The *Bible* says the earth stands still and the sun moves.

AC Which, when you get right down to it, is what I think is your real reason for advocating geocentrism. You're stuck in a fundamentalist mindset that ignores the Church's own teachings about how to interpret Scripture.

GEO And I suppose you, I and all other Catholics have a fundamentalist mindset for interpreting *Mt 26:26* in the hyperliteralist fashion that we do by seeing it as referring to the real Body of Christ; and we are fundamentalist for literally interpreting the water of John 3:5 as referring to real water which carries the grace of God; and the rock of *Mt 16:18* as referring to a real person. You see, this fundamentalist argument cuts both ways. And it's ironic that even the "fundamentalist" Protestant you chide won't even interpret *Mt 26:26* in the hyperliteral way you say he approaches other Scriptures. So it's not really a matter of fundamentalism, is it? It's a matter of which Scriptures one decides to interpret literally and which ones he resigns to metaphor, whether we're talking about Catholics or Protestants. So please don't try to win this argument by appeals to "fundamentalism," since I can see right through it. As I said before, the Church teaches, from Augustine to Leo XIII through the 1992 Catechism, that the literal sense of Scripture is the primary sense, and it is only abandoned when it can be proven that it does not apply. It just so happens that we Catholics have assumed that science has proven that the earth goes around the sun when in reality heliocentrism is merely one model, and a model that hasn't been proven to be the only model by any stretch of the imagination.

AC I believe you are seriously misrepresenting the Catholic faith by wrongly claiming that the Church has condemned heliocentrism (the belief that the earth orbits the sun, also called "Copernicanism" after Fr. Nicolaus Copernicus).

GEO The *Catholic Encyclopedia* states quite clearly that both Pope Paul III and Pope Urban VIII "condemned" Copernicanism. Here is the statement from the *CE*:

That both these pontiffs were convinced anti-Copernicans cannot be doubted, nor that they believed the Copernican system to be unscriptural and desired its suppression. The question is, however, whether either of them condemned the doctrine *ex cathedra*. This, it is clear, they never did.

Notice that, according to the *CE*, it is not a matter of whether Paul III and Urban VIII "condemned" Copernicanism (since they clearly did condemn it) but whether they did so on an *ex cathedra* basis. That means the popes could officially condemn the teaching and hold it unsafe and ill-advised for Catholics to believe it, without making it a dogmatic decree on par with the Immaculate Conception or the Deity of Christ. Since there are various levels of authoritative statements in the Catholic Church, this can be done quite easily. The point remains, however,

that no one can counter my statement that two popes condemned Copernicanism, for they clearly did condemn it. Nor can anyone lightly dismiss this condemnation, since according to Church protocol, one would have to obtain an official statement annulling the condemnations of Paul and Urban, but the Church has issued no such annulment.

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AC You really can't seem to decide whether the Church has condemned Copernicanism or not when you wrote to me "the Church officially condemned Copernicanism by two popes in formal decrees." But on your website you wrote, "Since the Catholic Church has made no official ruling on either of these two issues [evolution and Copernicanism], we accept anyone with an opposing view." So, I'm not sure whether you really believe the Church "officially condemned Copernicanism" or whether you believe the Church "has made no official ruling" on it. In public debate you seem to favor the former position, though, and that's why I think it's important to refute you on this.

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GEO Well, I hope what I said above DOES clarify the issue, but for clarity's sake, I will change the word "official" to "dogmatic" on our website, so that it reads, "Since the Catholic Church has made no infallible dogmatic ruling on either of these two issues."

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AC The truth is the Church takes no dogmatic position on this issue, for the simple reason that it's not a dogmatic issue. The Church exists to teach us the faith and morals of the Gospel, not to rule on arcane bits of physics. That is simply beyond its competence.

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GEO Your comments are very misleading. Granted, the Church does not make dogmatic decrees on science, *per se*, but she can do so, and does do so, if she thinks that the unproven views of science directly impinge on some matter of the faith. She did this, for example, in Pius XII's encyclical *Humani Generis*, which condemned as false the scientific view of Polygenism, since it conflicted with the Catholic Church's stance that we inherited Original Sin from only one set of first parents. In this way, the Church denied one of the major tenets of Evolutionary theory which claims that mankind originated from multiple sets of parents. The issue at stake for Paul III and Urban VIII was that, interpreted literally as was the Church's custom for 1600 years prior, the Copernican theory makes Scripture contradict itself. This is what concerned Bellarmine, and he convinced Urban of the same.

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AC It is true, as you say on you website, that "the Catholic Church has never endorsed the Copernican theory," but that is simply because the Church is not in the business of endorsing or condemning scientific theories, except where they impinge on the areas of the Church's competence – faith and morals. You want us to believe that the heliocentric theory does impinge on faith because, in your view, it contradicts the *Bible*. The *Bible* says the sun "rises" and "sets," and that the earth is "established" upon its "foundations."

=====

GEO You seem intent on isolating me from the judgments of Paul III and Urban VIII. It was

they, not me, who condemned Copernicanism because it infringed on the literal interpretation of Scripture. I'm just following their lead. I think its becoming clear that you simply don't like the fact, nor do you have an adequate explanation for the fact that a Pope made an official condemnation of one of you cherished beliefs. I can understand. I used to be there too. But I got tired of trying to explain it away. As a Catholic I believe the Pope is guided by the Holy Spirit when he makes official statements, even those not of an *ex cathedra* level. If we don't believe this as Catholics, then we've just undermined about 90 percent of our Catholic belief system. I think its high-time that Catholics take a serious look at this cosmological issue for that very reason. And I think I deserve the right to do so without having the Inquisitorial review board tar and feather me for such an attempt.

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AC Therefore, according to you, the *Bible* teaches a stationary earth and a moving sky. You say:

Scripture is very clear that the earth is stationary and that the sun, moon and stars revolve around it. . . . If there was only one or two places where the Geocentric teaching appeared in Scripture, one might have the license to say that those passages were just incidental and really didn't reflect the teaching of Scripture at large. But the fact is that Geocentrism permeates Scripture. Here are some of the more salient passages (*Sirach 43:2-5; 43:9-10; 46:4; Psalm 19:5-7; 104:5; 104:19; 119:90; Ecclesiastes 1:5; 2 Kings 20:9-11; 2 Chronicles 32:24; Isaiah 38:7-8; Joshua 10:12-14; Judges 5:31; Job 9:7; Habakkuk 3:11; (1 Esdras 4:12); James 1:12*). I could list many more, but I think these will suffice.

If you look at those passages, you'll see that what permeates Scripture is not geocentric cosmology (or any cosmology) but simply a narrative description of the earth, sun, moon, and stars as they appear to an earth-bound observer.

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GEO No, even Heliocentrists don't say that about those passages. They don't make it an either/or proposition. What they say, and say correctly, is that if one interprets them FIGURATIVELY or PHENOMENOLOGICALLY, then he can understand them as merely giving the language of appearance; but if one interprets them LITERALLY, then he is obliged to say that the sun goes around the earth. The question, then, regards whether we should interpret the passages phenomenologically or literally; not whether the passage itself teaches one view. Since neither Heliocentrism nor Geocentrism has been proven beyond the shadow of a doubt, and since the Church has not made an *ex cathedra* ruling on the issue, then one has at least the right, in principle, to opt for a phenomenological or literal interpretation of the passages. My caution to my beloved brethren, however, is: (1) that they do not have the right to tar and feather someone who decides to take the passages literally; and (2) that they better re-examine their own view of this issue and not assume that they have everything locked up, since (a) two popes condemned Copernicanism in official statements as representatives of the Church of God on earth; (b) Scripture, literally interpreted, teaches Geocentrism; (c) all the Church Fathers were geocentrists; (d) the science of Heliocentrism has obvious anomalies and contradictions.

=====

AC Unfortunately, you want us to approach Scripture with such a narrow, cramped, literalistic mindset that we are forced to treat a poetic description of a sunrise as if it were a scientific treatise on orbital mechanics.

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GEO As I argued previously, this issue is not really a matter of a “narrow, cramped, literalistic mindset.” If that were the case, then the Protestant who accuses us of interpreting *Mt 26:26* (“This is my body”) as the real body of Christ would have every right to win the argument, since our interpretation could be classed as a “narrow, cramped, and literalistic mindset,” not to mention being absurd to think that you can actually eat Jesus’ body every Sunday. If we take your standard to its logical conclusion, then Catholics should be seeking to do away with their interpretation of *Mt 26:26*, and seek for a more poetic and phenomenological interpretation. But why don’t we? For several reasons: (1) because the Tradition of the Church tells us not to; (2) because Scripture, literally interpreted, tells us not to; (3) because we are not beholden to the objections of science when they say that Transubstantiation cannot take place; (4) because the Church has formally and officially decreed that *Mt 26:26* must be interpreted literally. But these (except that the official condemnation of Copernicanism was not *ex cathedra*) are precisely the reasons I am advocating Geocentrism!

=====

AC And if we object that we don’t have to interpret those passages literally, you reply: “The Church has made no dogmatic teaching saying that we don’t have to take these Scriptures literally.”

GEO In fact, Leo XIII taught in *Providentissimus Deus* (1893) that, in the first instance, Scripture MUST be interpreted literally, unless there is some compelling reason to interpret it otherwise.

AC You are referring to paragraph 15 of *Providentissimus Deus*, in which the Pope tells us that when we read Scripture we must “not . . . depart from the literal and obvious sense, except only where reason makes it untenable or necessity requires.” But if only you had read on to paragraph 18, where the Pope specifically discussed the relationship between Scripture and the natural sciences, you would have discovered that Pope Leo specifically rejected the very thing you insist on: that Scripture intends to teach geocentrism (or any other cosmology). The Pope said:

We must remember, first, that the sacred writers, or to speak more accurately, the Holy Ghost Who spoke by them, did not intend to teach men these things (that is to say, the essential nature of the things of the visible universe), things in no way profitable unto salvation. Hence they did not seek to penetrate the secrets of nature, but rather described and dealt with things in more or less figurative language, or in terms which were commonly used at the time, and which in many instances are in daily use at this day, even by the most eminent men of science [e.g., the words “sunrise” and “sunset”]. Ordinary speech primarily and properly describes what comes under the senses; and somewhat in the same way the sacred writers – as the Angelic Doctor also reminds us – “went by what sensibly appeared,” or put down what God, speaking to men, signified, in the way men could understand and were accustomed to.

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GEO First, I want to point out that your addition to Pope Leo’s statement [e.g., the words “sunrise” and “sunset”] is not part of what Leo said. By injecting that phrase between Leo’s words, you attempt to pre-condition others to think that Leo was specifically referring to the example of the “sun-rising” and “sun-setting” language in Scripture. But Leo didn’t cite any examples, did he? So we don’t know if he is referring to the sun. Second, Aquinas believed that the sun revolved around the earth also, so the quote from Aquinas that Leo cites cannot refer to

the passages in Scripture which say the sun rises and sets.

AC The Pope also said,

There can never, indeed, be any real discrepancy between the theologian and the physicist, as long as each confines himself within his own lines . . . If dissension should arise between them, here is the rule also laid down by St. Augustine, for the theologian: “Whatever they can really demonstrate to be true of physical nature, we must show to be capable of reconciliation with our Scriptures.”

GEO Yes, Leo, in the same encyclical said that if science can prove its beliefs, then we will show them that Scripture is to be interpreted to support those proofs. Who would argue with that? Certainly not I. But it is my conviction, and it certainly was the conviction of Pope Urban VIII and St. Robert Bellarmine who examined both Copernican and Galilean cosmology, that they hadn’t proven their case. In fact, the only reason Copernicus’ book was taken off the *Index* was that the editors agreed to take out anything in the book that regarded Copernicanism as a proven fact. And after reading your supposed proofs for Heliocentrism, I dare say that you haven’t proved your case either, and can’t prove your case. Consequently, I’m abiding to all of what Leo said, that is, in interpreting Scripture literally but only relenting if science can prove its case, which they haven’t.

In fact, Leo also warned us that what is taken as proven in science today is often overturned by the science of tomorrow. Leo stated it this way in *Providentissimus Deus*:

The Catholic interpreter, although he should show that those facts of natural science which investigators affirm to be now quite certain are not contrary to the Scripture rightly explained, must nevertheless always bear in mind, that much which has been held and proved as certain has afterwards been called in question and rejected. And if writers on physics travel outside the boundaries of their own branch, and carry their erroneous teaching into the domain of philosophy, let them be handed over to philosophers.
(19)

As for St. Augustine, I suggest all interested parties read the section on Augustine’s views of science and Scripture in one of my previous responses. I guarantee it will be an eye-opener for you. So, yes, the Church (in the person of Pope Leo XIII) has said that we don’t have to take the “geocentric” verses literally. You see what you just did? The same thing I warned about above. You ASSUME that Leo was speaking about the Geocentric verses of Scripture, and then you try to make it part of your conclusions regarding how to approach this issue. But Leo didn’t say a word about Geocentrism, or the sun or moon or any other heavenly body. In my opinion, he was too smart to venture into that arena, for he knew that two popes prior to him had already condemned Copernicanism in official statements. If Leo had the intention of subjugating Geocentrism, he would have had to issue an official annulment of what Paul III and Urban VIII stated, but he didn’t, and neither did any pope after him.

AC Rather, we can recognize, as the Pope said, that the authors of Scripture did not intend to teach us about astronomy, biology, or the other physical sciences, and we can recognize that when they described the motion of the heavenly bodies, they wrote the same way we write, that is, based on the appearance of things.

GEO You see, you just did it again by saying “as the Pope said....they described the motion of the heavenly bodies, they wrote the same way we write, that is, based on the appearance of things,” but Leo didn’t say that, did he?

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AC I would argue that the evidence for a rotating earth, especially the existence of geostationary satellites, is so overwhelming that, to use the Pope’s words, “reason makes it untenable” to believe otherwise, and to hold to the unnecessarily literalistic interpretation of the Scripture passages you think teach geocentrism, but in reality, according to Pope Leo XIII, are just narrative descriptions of the way things appear to an earth-bound observer.

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GEO I know you want to “argue” for a rotating earth, but proving it is another story altogether. Judging from the way you have systematically avoided the physics of cosmology in regards to the Lense-Thirring Principle, you really don’t have a leg to stand on, for every “proof” you offer for a rotating earth can simply be turned against you and attributed to a rotating universe, and there is no way for you, or anyone else, to disprove this. That principle, I believe, is something Leo XIII would have appreciated very much if it were told to him.

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AC Your insistence that Scripture intends to describe the actual motion of the universe directly contradicts the explicit teaching to the contrary of Pope Leo XIII, and the only person who seems not to realize this is you.

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GEO You are again attributing something to Leo that Leo NEVER said. Leo didn’t mention one word about the motion of heavenly bodies. He simply said that in some cases Scripture is interpreted in light of the times and culture of the people. No one would argue with that. But it has become apparent that you are on a self-styled crusade, and you are fueling it by exegeting Church documents.

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AC It has taken the Church 500 years to recover from the embarrassment of the Galileo debacle...

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GEO So I guess what you are telling me is what I suspected before – you’re embarrassed that two popes condemned Copernicanism in official statements. But that’s the difference between you and me. I’m not embarrassed at all by my pope’s statement. I applaud it immensely, and I congratulate him for standing up to the big guns of science and putting them in their place.

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AC ...and I’m concerned that much of that progress will be undone in the minds of many if you follow through on your threat to publish *Not by Science Alone* and present your discredited Medieval pseudo-science as *bona fide* Catholic teaching.

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GEO So the popes believed in “Medieval pseudo-science,” even though they are led by the Holy Spirit to teach officially for the Catholic Church, and no pope after them annulled their decision. Maybe my next book should be *Not By Heliocentric Catholics Alone*.

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AC Unfortunately, because you are a prominent Catholic writer and apologist, your voice carries, and for many people it has a quasi-magisterial authority.

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GEO “Quasi-magisterial authority”? How about papal authority, for I wasn’t the one who started this. Pope Urban VIII did. I’m just picking up the pieces left over after 400 years of modern physics which hasn’t gotten us any closer to how the universe really works. I know. I’ve studied it, along with all its dirty laundry, that few people in these Catholic circles know too much about.

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Re-cap of the discussion, thus far

AC You recently said, “My friends and colleagues who presently don’t have the time or inclination to really study the Geocentric issue just chalk it up to one of my idiosyncrasies.” You don’t present geocentrism as just one of your idiosyncrasies, you present it as “one of the Church’s more authoritative teachings in the 17th century.”

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GEO Then you explain to me what a formal and official statement from a pope of the Catholic Church condemning Copernicanism means? Don’t pontificate to me unless you have a reasonable and convincing argument as to why one of our popes condemned something that YOU say he had no right to condemn. HE was confronted with the evidence for Copernicanism. He had all the astrological, telescopic and other scientific evidence at his disposal. Galileo gave them to the Pope, but the Pope still rejected Copernicanism on the advice of all his theologians and scientists. He wasn’t lacking anything that scientists today have, since the motions of the sky have not changed one iota from the sixteenth century until now. If you think scientists today have more information to make an opposing judgment, what is it?? I’ve asked you for the evidence about a dozen times in our dialogue, but you haven’t given me any. Rather, you tell me that the moon has selective gravity for the oceans and therefore causes tides on the earth. You tell me that the Coriolis force effects hurricanes and projectiles but not toilets and clouds. You tell me that it doesn’t matter if a *NASA* or *NAOO* engineer sends up rockets and satellites based only on Fixed-earth model. You tell me that you’ve never studied aether theory, nor have any notion of its history. You can’t explain the Lense-Thirring effect; you can’t explain how the GSS can resist the earth’s perturbations; you can’t tell me what gravity is; you can’t tell me why the Foucault pendulum swings 15 degrees out of its parabola during eclipses, or hardly explain any contrary scientific evidence opposed to your view, yet you keep implying that I’m the one who is engaging in “pseudo-science”!

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AC You said, “But it seems you and your cohorts are bent on making Geocentrism a dividing line, and want to use it to call into question my abilities and dedication to the Catholic Church.”

In my opinion your crusade against heliocentrism calls into question only your wisdom and prudence, not your apologetic abilities or your dedication to the Catholic Church.

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GEO Correction. My crusade is against false science – a false science that calls into question the veracity of divine revelation. The false proofs for Heliocentrism happen to be just one part of that grab bag. I am against Evolution. I am against Catholic theologians (like Raymond Brown and the rest of the *Pontifical Biblical Commission*) for saying that there are historical errors in the *Bible*. I am against the pseudo-science of Relativity. I am against the pseudo-science of Big-Bang cosmogony. I am against anything that science can't prove, yet holds as a battering ram against taking the *Bible* at its literal word. That is what the Church has taught since the beginning: If science can't prove its claims, then there is absolutely no reason to claim that a passage which touches on science or history cannot be taken in its plain sense. I have the Fathers, Augustine, Aquinas, and the popes and Councils on my side. All you have today is what the extremely biased and fallible *PAS* feeds the adoring hierarchy and public.

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AC You said, "I find that appalling, especially when I have so much evidence on my side, and especially since it is a non-dogmatic area of the Church." It's precisely because this is a non-dogmatic area that I'm dumfounded that you're willing to fall on your sword over it.

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GEO I'm not "falling" on any sword; I am wielding the sword, and the sword is the word of God and the judgments of the Church.

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AC And when you plan to make it the subject of one of your *Not By . . .* books, I think you will create the impression in the public mind that this is a dogmatic area, because that's what your other *Not By . . .* books have dealt with.

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GEO Wrong. The other *Not By . . .* books dealt with infallible dogma. But the only "infallible dogma" I'm going to be dealing with in *Not By Science Alone* is that which the science community has made appear like infallible dogma. I'm going to show that everyone has the right to take Scripture at its word if he chooses so to do, because science simply has not proven their case. The operative word is PROOF. If you have it, then let's talk. If not, then perhaps you should listen before you make any hard and fast judgments.

Pope John-Paul II denoted by "JPII"

GEO Below are relevant portions of the address the Pope gave to the *Pontifical Academy of Science* in 1992. I will comment on them as needed. One will easily see that this address was not written by the Pope. As is always the case, it was written by the head of the *PAS* and handed to the Pope to read to the remaining members of the *PAS*. The address contains numerous factual errors; out of context statements; assumptions of proof for things that have not been proven; and a significant amount of subterfuge in dealing with St. Robert Bellarmine in order to make it appear that the traditional Church supported Copernicanism. The full address can be found at: <http://www.curriculumunits.com/galileo/inquisition/chdeclaration.htm>.

Intro to the speech of Pope John-Paul II

The “Galileo case” teaches us that different branches of knowledge call for different methods, each of which brings out various aspects of reality. In 1979 Pope John Paul II expressed the wish that the *Pontifical Academy of Sciences* would conduct an in-depth study of the celebrated and controversial “Galileo case”. A Commission of scholars for this purpose was established in 1981 and on Saturday morning, 31 October 81 they presented their conclusions to the Pope. A summary of these conclusions was given by Cardinal Paul Poupard. Receiving them in the Sala Regia of the Apostolic Palace, the Holy Father took the occasion to thank the members of the Commission for their work and to speak to the *Pontifical Academy of Sciences* on the distinct but complementary roles that faith and science fulfill in human life. Also present were members of the Diplomatic Corps accredited to the Holy See and high ranking officials of the Roman Curia.

GEO Obviously, this answers the question as to where the information about the Pope’s comments concerning Galileo originate – not with him, but with the *Pontifical Academy of Sciences*. Like its cousin, the *Pontifical Biblical Commission*, it is a bastion of liberal, worldly-thinking, scientific bureaucrats which does its best to squash every traditional and conservative thought regarding science and history. The truth is, they are a non-authoritative, fallible, and totally biased conglomeration of modern scientists who are sold out to Evolution, Relativity, and many of the prevailing views of popular science which have not yet been proven. The above speech was not written by the Pope. As is always the case, it is written by the spokesman for the *PAS*, Fr. Stanley Jaki, Ph.D., or one of his underlings, who hand it to the Pope to read to the remaining members of the *PAS*. The *PAS* did the same thing in 1996 when the words “evolution is more than a hypothesis” was broadcast to the whole world.

The *Pontifical Academy of Science* is composed of 80 scientists who elect their own members without reference to “race or religious creed,” yet they will not allow a single Creationist in their ranks, or anyone with an opposing view to Relativity. They are not appointed by the Pope. Presently they have the illustrious atheist, Stephen Hawking, as one of their members. Hence, we should not expect the *Academy* to say anything different to the Pope, since they have all avowed themselves to the current, yet, unproven, cosmologies centered on the Big Bang theory and the like. To show the bias and determination of the *PAS*, in 1982, only two years after the leading evolutionist, the late Stephen Jay Gould, shook up the entire scientific world with the admission that current evolutionary theory had to be abandoned for an alternative, due to the fact that the fossil record provided none of the transitional forms required by classic Darwinian evolutionary theory (which then caused Gould to opt for “punctuated equilibrium,” that is, that the forms just appeared without cause), the *PAS* had the audacity to say: “...we are convinced that masses of evidence render the application of the concept of evolution to man and other primates beyond serious doubt.” Oh really? Here the leading evolutionist of the world (Gould) just two years earlier put the most devastating blow on evolutionary theory, yet the *PAS* tells us that it is still “beyond serious doubt.” Ah, the famous lying paleontologist, Fr. Teilhard de Chardin, creator of Peking Man by his own deceptive hand, speaks from the grave to the *PAS*, and they gobble up his words as if they were gospel. But despite their bravado, we are not surprised to hear the remarks of Archbishop Luigi Barbarito when he said: “About this body [the *PAS*] I would say that it has no authority in matters of faith and doctrine and expresses only the views of its own members who belong to different religious beliefs.”

Do you know how such narrow-minded people get appointed as the spokesman for the *PAS* (Fr. Jaki) or the *Pontifical Biblical Commission* (Fr. Raymond Brown until his death in 1998)? Someone in the Curia recommends them to the Pope and the Pope is told to approve it. But this is where the process breaks down, because those who appoint the spokesman are as liberal-minded as the *PAS* and the *PBC*. Take Raymond Brown, for example. He was appointed to head the *PBC* by John-Paul II. Brown’s hermeneutic is taught by almost every major Catholic institution of higher learning in the world. But do you know what Raymond Brown taught? Here are a few items for you to digest:

Brown, and the *PBC* he chaired, have gone on record as advocating the modernist theory that Scripture contains historical errors, and that it is only inerrant when it speaks on matters of salvation – a view of Scripture totally contrary to what the Church has traditionally taught. Brown even admits that it was the traditional teaching when he writes: “In the last hundred years we have moved from an understanding wherein inspiration guaranteed that the Bible was totally inerrant to an understanding wherein inerrancy is limited to the Bible’s teaching of ‘that truth which God wanted put into the sacred writing for the sake of our salvation’” (*The Virginal Conception and Bodily Resurrection of Jesus*, pp. 8-9). But there’s more. Based on his new hermeneutic of Scripture, Fr. Brown not only calls into question the traditional reading of *Genesis*, but he also raises doubts about the Resurrection of Christ: (“Are we thereby perpetually committed to the notion held in times past of the biological how of that exaltation, namely a bodily resurrection?,” *Ibid.* p. 12); and Papal Infallibility: (“If biblical criticism has qualified the notion of the inerrancy of the Bible, does modern historical study imply that the Roman Catholic notion of the infallibility of Church teaching also has to be qualified?,” *Ibid.*, p. 35); In fact, in his books and articles, Fr. Brown questions a majority of beliefs held as dogma in the Catholic Church, e.g., Mary’s Perpetual Virginity; the monarchical episcopate (i.e., papacy); the function and identity of apostles, bishops and priests; apostolic succession; the barring of women from ordination; the Eucharist as a sacrifice; the value and authority of Tradition, etc. All of these will be documented in my upcoming book. In short, the *PBC* and the *PAS* are cesspools of liberal theology. And yet we are supposed to take the word of the *PAS* as gospel when the Pope reads a statement written by them and for them. I don’t think so.

JPII 5.

Paradoxically, Galileo, a sincere believer, showed himself to be more perceptive in this regard than the theologians who opposed him. “If Scripture cannot err”, he wrote to Benedetto Castelli, “certain of its interpreters and commentators can and do so in many ways”.(2) We also know of his letter to Christine de Lorraine (1615) which is like a short treatise on biblical hermeneutics.(3)

GEO Do you see what’s happening here? Galileo is revered as a “sincere believer,” and one who “showed himself to be more perceptive in this regard than the theologians who opposed him.” In other words, Galileo is lifted up as a better interpreter of Scripture than all the theologians of the Catholic Church! Can’t you just see the agenda the *PAS* is shoving down the Pope’s [and your] throat? They are against Tradition. They are against anything that infringes on their Teilhardian and Brownian view of the world and Scripture. They intend to make Bellarmine and all the rest of the Tridentine theologians look like ignoramuses, and portray Galileo as if he was an angel who dropped out of heaven to save us from the superstitions of 1600 years prior.

Here Galileo presents a theory, one which he didn't prove by any stretch of the imagination and which no one has proven today, and yet he is like the Luther of science, standing firm against the tide of a millenia and a half of Catholic thought. Yes, and we wonder why this pontificate has also praised Luther as a dedicated and brilliant theologian who was wrongly chastised by the Church of Trent. Something is seriously wrong here.

JPII 6.

From this we can now draw our first conclusion. The birth of a new way of approaching the study of natural phenomena demands a clarification on the part of all disciplines of knowledge. It obliges them to define more clearly their own field, their approach, their methods, as well as the precise import of their conclusions. In other words, this new way requires each discipline to become more rigorously aware of its own nature.

The upset caused by the Copernican system thus demanded epistemological reflection on the biblical sciences, an effort which later would produce abundant fruit in modern exegetical works and which has found sanction and a new stimulus in the Dogmatic Constitution *Dei Verbum* of the Second Vatican Council.

GEO Oh, this is very revealing. In other words, because we now think that the earth goes around the sun by the unproven theory of Copernicus, this discovery forced us to rethink how we interpret the Bible, and then led to a whole new method of biblical interpretation, and this new method found a happy home at Vatican II. Now we wonder why the Traditionalists are so up in arms?! They complain that Vatican II watered down our traditional beliefs. Don't you think it's a bit ironic that Raymond Brown, the very person who claims that the *Bible* is only inerrant when it speaks on matters of salvation, says that he got that teaching from the language of *Dei Verbum* 11's phrase "for the sake of our salvation" ("it follows that the books of Scripture must be acknowledged as teaching solidly, faithfully and without error that truth which God wanted put into sacred writings for the sake of salvation"). And what, according to the *PAS* draft that John Paul read to the *PAS*, was the cause of that specific language? Well its answered in the above paragraph. It says, "The upset caused by the Copernican system thus demanded....modern exegetical works and which has found sanction and a new stimulus in the Dogmatic Constitution *Dei Verbum* of the Second Vatican Council." In other words, because of Copernicus Vatican II is forced to reevaluate how we interpret Scripture, and they are forced to basically throw out all previous exegetical standards that we have lived by for 1965 years prior! And what is the result of those new standards? Heterodox theologians like Raymond Brown running around the world telling everyone that there are mistakes in Scripture, historical and scientific. And thus, what he is really saying is, not only were the exegetes of yesteryear ignorant, but even those who wrote the Scripture were ignorant. But after 1900 years of darkness God suddenly chose to bless us in the likes of Teilhard de Chardin and Raymond Brown who will now lead us to the promise land of true biblical hermeneutics. Do you see what damage the Copernican theory has caused? This is precisely why I am on the war-path against it, for it has produced nothing good. Oh, I take that back. It has allowed Catholic scientists not to be embarrassed in front of the rest of the world's pagans.

JPII 7.

The crisis that I have just recalled is not the only factor to have had repercussions on biblical interpretation. Here we are concerned with the second aspect of the problem, its pastoral dimension.

By virtue of her own mission, the Church has the duty to be attentive to the pastoral consequences of her teaching. Before all else, let it be clear that this teaching must correspond to the truth. But it is a question of knowing how to judge a new scientific datum when it seems to contradict the truths of faith. The pastoral judgment which the Copernican theory required was difficult to make, in so far as geocentrism seemed to be a part of scriptural teaching itself.

GEO “...which the Copernican theory required”? How can a mere theory “require” anything? The very words of the *PAS* (shoved into the hands of the Pope) betray their agenda. “Theories” can’t make requirements to determine pastoral judgments. “Theories” are unproven. That’s why they are called “theories.” Oh, but modern science has an answer for that one. They have a new definition for a theory. They hold that a theory is true unless proven wrong. Yep, that’s right out of the Evolutionist’s handbook written by Stephen Gould and Niles Eldridge. They don’t have to prove their theories, since they hold that there is nothing better to replace what they have theorized. The same mentality apparently seems to be true with the Catholic *PAS*. The ironic thing is, that the above statement shows that the *PAS* knows that a literal reading of Scripture teaches Geocentrism. So what do they have to do? They have to find a way to de-literalize Scripture. Sad to say, that is the goal of modern historical criticism. Why do you think Ray Brown can smugly question whether the Resurrection of Christ ever took place? Because obviously, he doesn’t think he has to interpret those passages literally. Why else? Because science tells him that people don’t rise from the dead. Why do you think Fr. Eduard Schillebeeckx doesn’t believe in Transubstantiation? Because he thinks interpreting *Mt 26:26* literally is not required any longer. Why? Because, as the above quote from the *PAS* tells us, we had to develop a whole new “epistemological reflection,” complete with a whole new “modern exegetical” approach, and one that we’re told is sanctioned by the Second Vatican Council itself because, somewhere along they line (which they don’t reveal) we have adopted Copernicanism as the only valid cosmology. That’s how deep this issue of Copernicanism really goes.

JPII 7.

It would have been necessary all at once to overcome habits of thought and to devise a way of teaching capable of enlightening the people of God. Let us say, in a general way, that the pastor ought to show a genuine boldness, avoiding the double trap of a hesitant attitude and of hasty judgment, both of which can cause considerable harm.

8.

Another crisis, similar to the one we are speaking of, can be mentioned here. In the last century and at the beginning of our own, advances in the historical sciences made it possible to acquire a new understanding of the Bible and of the biblical world. The rationalist context in which these data were most often presented seemed to make them dangerous to the Christian faith. Certain people, in their concern to defend the faith, thought it necessary to reject firmly- based historical conclusions. That was a hasty and unhappy decision. The work of a pioneer like Fr Lagrange was able to make the necessary discernment on the basis of dependable criteria.

GEO Unfortunately, the very person put in charge of developing those “advances in the historical sciences...to acquire a new understanding of the Bible and the biblical world” was

Raymond Brown and his company of liberal exegetes – the very man who questioned the infallibility of the pope who is reading the very words above.

JPII 8.

It is necessary to repeat here what I said above. It is a duty for theologians to keep themselves regularly informed of scientific advances in order to examine if such be necessary, whether or not there are reasons for taking them into account in their reflection or for introducing changes in their teaching.

GEO Unfortunately, the *PAS* has not kept themselves “regularly informed of scientific advances in order to examine if such be necessary...” They have systematically barred any of the opposing evidence from science that would put a dent in their Darwinian/Einsteinian universe. They simply do not practice what is being preached here.

JPII 9.

If contemporary culture is marked by a tendency to scientism, the cultural horizon of Galileo’s age was uniform and carried the imprint of a particular philosophical formation. This unitary character of culture, which in itself is positive and desirable even in our own day, was one of the reasons for Galileo’s condemnation. The majority of theologians did not recognize the formal distinction between Sacred Scripture and its interpretation, and this led them unduly to transpose into the realm of the doctrine of the faith a question which in fact pertained to scientific investigation.

GEO As it stands, Pope Urban VIII made an official condemnation of the Copernican theory, as opposed to our present pope who merely reads a few recommendations written by the *Pontifical Academy of Science*, a document which espouses unproven theories such as Evolution and Relativity. Pope Urban VIII’s decree was never annulled, but our present pope is told to say that Pope Urban VIII made a mistake because he “did not recognize the formal distinction between Sacred Scripture and its interpretation,” which led him “unduly to transpose into the realm of the doctrine of the faith a question which in fact pertained to scientific investigation.” Do you realize what the *PAS* is making the Pope say? Basically that Pope Urban and his theologians, including Robert Bellarmine, were a bunch of ignoramuses who didn’t know how to interpret Scripture to save their life. And we are supposed to believe such trash about the popes and theologians who lived right on the coattails of the Council of Trent which housed some of the greatest minds the Church has ever known! The *PAS* is saying that Urban not only made a mistake about condemning Copernicanism, but he also made a mistake about even getting into the issue!! Oh really? Since when is a pope told what to do when he gives a formal decree condemning an aberrant belief that he determines is harmful to the Church?! You see, the *PAS* doesn’t believe that Pope Urban was guided by the Holy Spirit to give his condemnation against Copernicus, because they don’t believe in such supernatural things anymore. Only they and their science is infallible. They have adopted a wholly naturalistic view of the world – everything must happen by natural causes, and only they can tell you what those natural causes are – Evolution/Big-Bangism/Relativity and the like.

JPII 9.

In fact, as Cardinal Poupard has recalled, Robert Bellarmine, who had seen what was truly at stake in the debate personally felt that, in the face of possible scientific proofs that the earth orbited round the sun, one should “interpret with great circumspection” every biblical passage which seems to affirm that the earth is immobile and “say that we do not understand, rather than affirm that what has been demonstrated is false”. (4)

GEO Pay very close attention. You are about to witness one of the most dastardly cases of subterfuge ever perpetrated on the Catholic public. Bellarmine rejected Copernicanism to his dying day. He was the one who pointed out that Galileo had no indisputable proof for his view. The above paragraph takes Bellarmine’s letter totally out of context to make it appear as if the quote is siding with the writer [Cardinal Poupard], when in actuality, it is not. Here is the context of what Bellarmine said to Fr. Foscarini:

Bellarmino:

But to want to affirm that the sun really is fixed in the center of the heavens and only revolves around itself (turns upon its axis) without traveling from east to west, and that the earth is situated in the third sphere and revolves with great speed around the sun, **is a very dangerous thing, not only by irritating all the philosophers and scholastic theologians, but also by injuring our holy faith and rendering the Holy Scriptures false.** For Your Reverence has demonstrated many ways of explaining Holy Scripture, but you have not applied them in particular, and without a doubt you would have found it most difficult if you had attempted to explain all the passages which you yourself have cited.

Bellarmino:

Second. I say that, as you know, the Council (of Trent) prohibits expounding the Scriptures contrary to the common agreement of the holy Fathers. And if Your Reverence would read not only the Fathers but also the commentaries of modern writers on Genesis, Psalms, Ecclesiastes and Josue, you would find that all agree in explaining literally (ad litteram) that the sun is in the heavens and moves swiftly around the earth, and that the earth is far from the heavens and stands immobile in the center of the universe. Now consider whether in all prudence the Church could encourage giving to Scripture a sense contrary to the holy fathers and all the Latin and Greek commentators.

Bellarmino:

Nor may it be answered that this is NOT a matter of faith, for if it is not a matter of faith from the point of view of the subject matter, it is on the part of the ones who have spoken. It would be just as heretical to deny that Abraham had two sons and Jacob twelve, as it would be to deny the virgin birth of Christ, for both are declared by the Holy Ghost through the mouths of the prophets and apostles.

Now here is the paragraph containing the piece quoted by the pope from Cardinal Poupard. You’ll notice that, considering Bellarmine’s first two paragraphs above, he is not making any concessions whatsoever to the Copernican view, yet we are made to believe he is by the pope’s statement.

Bellarmino:

Third. I say that if there were a true demonstration that the sun was in the center of the universe and the earth in the third sphere, and that the sun did not travel around the earth but the earth circled the sun, **then**

it would be necessary to proceed with great caution in explaining the passages of Scripture which seemed contrary, and we would rather have to say that we did not understand them than to say that something was false which has been demonstrated. **But I do not believe that there is any such demonstrations; none has been shown to me.** It is not the same thing to show that the appearances are saved by assuming that the sun is at the center and the earth is in the heavens. I believe that the first demonstration might exist, but I have grave doubts about the second, and in a case of doubt, one may not depart from the Scriptures as explained by the Holy Fathers.

Notice that, right after the quote that was extracted by the *PAS*, the *PAS* totally avoids quoting the rest of what Bellarmine says! [“ But I do not believe that there is any such demonstrations; none has been shown to me”]. It is a sentence that totally negates the impression that the *PAS* is trying to make from Bellarmine! What sleight-of-hand message is the *PAS* slipping into the pope’s hands?! This is absolutely appalling! Is this the new “modern exegetical method”? One which allows the exegete to take comments out of context and make them appear as if they agree with the theory when in fact they do not? Do you really think that this type of subterfuge would come from our pope? If so, then you believe the pope fosters lies. For anyone can see by a mere cursory reading of the above paragraphs in Bellarmine’s letter that, if anything, Bellarmine is just as condemnatory of the Copernican theory as was Pope Urban VIII. This is truly shocking, and it just confirms in my mind the agenda of the present day curia. What a truly sad moment for all of us to have to witness this obvious disregard for the facts of history.

JPII 9.

Before Bellarmine, this same wisdom and same respect for the divine Word guided St Augustine when he wrote: “If it happens that the authority of Sacred Scripture is set in opposition to clear and certain reasoning, this must mean that the person who interprets Scripture does not understand it correctly. It is not the meaning of Scripture which is opposed to the truth but the meaning which he has wanted to give to it. That which is opposed to Scripture is not what is in Scripture but what he has placed there himself, believing that this is what Scripture meant”. (5)

GEO Again, what is this supposed to prove? No one would disagree with this principle. But what “clear and certain reasoning” has science given us about the “theory” of Copernicanism and Relativity? Nothing has been proven beyond doubt. As a matter of fact, unless science could irrefutably prove their contentions, Augustine taught that we are to use Scripture as the ultimate authority in areas of science. Anyone familiar with Augustine’s *The Literal Interpretation of Genesis*” knows this to be true. When dealing with the narrative of *Genesis* Augustine writes:

With this reasoning some of our scholars attack the position of those who refuse to believe that there are waters above the heavens while maintaining that the star whose path is in the height of the heavens is cold. Thus they would compel the disbeliever to admit that water is there not in a vaporous state but in the form of ice. But whatever the nature of that water and whatever the manner of its being there, we must not doubt that it does exist in that place. The authority of Scripture in this matter is greater than all human ingenuity.” (Bk 2, Ch. 5, No 9.).

In the final analysis, Scripture was Augustine’s final authority, not the claims of science.

JPII 9.

A century ago, Pope Leo XIII echoed this advice in his encyclical *Providentissimus Deus*: “Truth cannot contradict truth and we may be sure that some mistake has been made either in the interpretation of the

sacred words, or in the polemical discussion itself".(6)

GEO Yes, but Leo also told us that Scripture is to be interpreted in its “literal and obvious sense” unless there is some compelling reason to abandon that interpretation, and he quoted Augustine as support for that edict. He also told us that we must be very cautious about the claims of science, since one theory is overturned by others on a constant basis. Here’s what he wrote:

The Catholic interpreter, although he should show that those facts of natural science which investigators affirm to be now quite certain are not contrary to the Scripture rightly explained, must nevertheless always bear in mind, that much which has been held and proved as certain has afterwards been called in question and rejected. And if writers on physics travel outside the boundaries of their own branch, and carry their erroneous teaching into the domain of philosophy, let them be handed over to philosophers.
(19)

Cardinal Poupard has also reminded us that the sentence of 1633 was not irreformable.

We have a Pope in Urban VIII who refused to take Copernicus’ book off the *Index* unless it was emptied of the air of certainty it contained; but we have a present Cardinal (Poupard) who has implicitly admitted that Pope Urban’s decree was authoritative, since Poupard was forced to mention that the decree was “not irreformable.” If it was irreformable, that means Urban’s decree would be infallible, which then means that Urban’s non-irreformable statement was at least highly authoritative, but just not infallible. So what? A large percentage of what we believe in Catholicism hasn’t been defined infallibly by the Pope, but does that make the Pope’s lesser authoritative statements any less true and binding? If that was the case, almost every thing John Paul has taught us for 22 years could be dismissed, since the only thing he has ever decreed that is irreformable is *Ordinatio Sacerdotalis*, concerning the fact that women cannot be priests. Pope Urban’s condemnation of Copernicanism was just a tad below an irreformable teaching. That being the case, its going to take an equally binding statement just a tad below an irreformable teaching in order to annul what Urban condemned. A briefing to the pope composed by the *Pontifical Academy of Science* certainly doesn’t qualify as an official annulment, especially since the pope made no formal reversal of Urban’s decree, nor bound any Catholic to accept the *PAS*’s recommendation on Galileo. As far as ecclesiastical protocol, the 1992 statement doesn’t even come close to settling the issue.

JPII 9.

...and that the debate which had not ceased to evolve thereafter, was closed in 1820 with the imprimatur given to the work of Canon Settele. (7)

GEO Who? Canon Settele? Who’s he? There’s not even an entry for him in the old *Catholic Encyclopedia*. Curiously, the present document puts a “(7)” next to Canon Settele’s name (implying that they have a reference for him), but there is no (7) in the endnotes of the address! The endnotes go from 6 to 8. Be that as it may, who says that an imprimatur given to a book closes the case for anything of controversy? The *PAS* is obviously on a fishing expedition here, since they cannot find a formal reversal of Pope Urban’s decree anywhere in Catholic documents, and thus they must resort to “imprimatur” from a person no one has ever heard of!

Thus far, every support from which the pope's speech has drawn (Bellarmine, Augustine, Leo, and now Settele) amounts to a big zero in the 'proof and support' department. This is some real shoddy work by the *PAS*. If I were the Pope I would be ashamed to present it to the world as the work of Vatican scholars.

JPII 10.

From the beginning of the Age of Enlightenment down to our own day, the Galileo case has been a sort of "myth", in which the image fabricated out of the events was quite far removed from reality. In this perspective, the Galileo case was the symbol of the Church's supposed rejection of scientific progress, or of "dogmatic" obscurantism opposed to the free search for truth. This myth has played a considerable cultural role. It has helped to anchor a number of scientists of good faith in the idea that there was an incompatibility between the spirit of science and its rules of research on the one hand and the Christian faith on the other. A tragic mutual incomprehension has been interpreted as the reflection of a fundamental opposition between science and faith. The clarifications furnished by recent historical studies enable us to state that this sad misunderstanding now belongs to the past.

GEO The only "tragic mutual incomprehension" that has taken place is that the *PAS* has systematically avoided any science that conflicts with their belief system.

JPII 11.

From the Galileo affair we can learn a lesson which remains valid in relation to similar situations which occur today and which may occur in the future. In Galileo's time, to depict the world as lacking an absolute physical reference point was, so to speak, inconceivable. And since the cosmos, as it was then known, was contained within the solar system alone, this reference point could only be situated in the earth or in the sun. Today, after Einstein and within the perspective of contemporary cosmology neither of these two reference points has the importance they once had. This observation, it goes without saying, is not directed against the validity of Galileo's position in the debate; it is only meant to show that often, beyond two partial and contrasting perceptions, there exists a wider perception which includes them and goes beyond both of them.

GEO Notice the assumption that Einstein's theory is a cold, hard fact of life: ("Today, after Einstein and within the perspective of contemporary cosmology neither of these two reference points has the importance they once had"). No pope would write this garbage, for he has not a clue whether Relativity is true or false. It is only a theory, and a theory with numerous anomalies and contradictions; anomalies that the scientific community has tried to keep under wraps for almost a century. It only takes a short while to find them. For example, regarding Einstein's supposed "best" proof for Relativity, he accurately predicted the perihelion of Mercury within an acceptable margin of error. The science community praised him to no end for this. But what they don't tell you is that Einstein tried out his Relativity formula on four more planets. His figures were so far off that it was almost laughable. In fact, for one planet he had the perihelion going in the opposite direction! Contradictions and oddities like these abound in Relativity theory. There are so many books available showing that Relativity theory is an absolute farce, that it is beyond belief that the *PAS* can pretend the theory is sacrosanct, and then have the audacity to put those words in the mouth of the Pope.

JPII 12.

Another lesson which we can draw is that the different branches of knowledge call for different methods. Thanks to his intuition as a brilliant physicist and by relying on different arguments, Galileo, who practically invented the experimental method, understood why only the sun could function as the centre of the world, as it was then known, that is to say, as a planetary system. The error of the theologians of the time, when they maintained the centrality of the earth, was to think that our understanding of the physical world's structure was, in some way, imposed by the literal sense of Sacred Scripture. Let us recall the celebrated saying attributed to Baronius "*Spiritui Sancto mentem fuisse nos docere quomodo ad coelum eatur, non quomodo coelum gradiatur*". In fact, the Bible does not concern itself with the details of the physical world, the understanding of which is the competence of human experience and reasoning. There exist two realms of knowledge, one which has its source in Revelation and one which reason can discover by its own power. To the latter belong especially the experimental sciences and philosophy. The distinction between the two realms of knowledge ought not to be understood as opposition. The two realms are not altogether foreign to each other, they have points of contact. The methodologies proper to each make it possible to bring out different aspects of reality.

GEO Here's another shame given to us by the *PAS*: "The *Bible* does not concern itself with the details of the physical world." What nonsense! What demagoguery to make such an unqualified statement! There are all kinds of biblical statements about the physical world. Granted, giving details about the physical world is not the *Bible*'s first order of business, but that doesn't mean that one can conclude that the *Bible* "does not concern itself with the details of the physical world." All one need do, for example, is read the Flood account in *Genesis 7-9*. It describes the event as if one were reading a newspaper account written by the *New York Times*. This much we know is true: When the *Bible* touches upon science or history, it is absolutely accurate in its statements. You can examine any papal or conciliar statement from the sixteenth century onwards, and they all say the same thing – the *Bible* contains no error, whether it be of redemption, science or history. But what does the *PAS* believe about that? They believe that the *Bible* is loaded with scientific and historical errors. If you don't believe me, then I suggest you pick up Raymond Brown's *New Jerome Biblical Commentary* and read a few hundred pages. At almost every turn the editors are calling into question the veracity of Scripture.

JPII 13.

Your *Academy* conducts its work with this outlook. Its principal task is to promote the advancement of knowledge with respect for the legitimate freedom of science(8) which the Apostolic See expressly acknowledges in the statutes of your institution.

GEO Freedom of science? Then why is the *Academy* filled with 80 avowed evolutionists with not a single Creationist allowed in their ranks? Why has the *Academy* consistently rejected non-Relativistic science as an alternative to understand the universe? Why has the *Academy* endorsed the Big-Bang theory when there are other viable theories in cosmogony available to them to study? Why has the *Academy* not reported any of these alternatives to the Pope? The truth is, the *Academy* has suppressed the science that they don't want to hear.

JPII 13.

What is important in a scientific or philosophic theory is above all that it should be true or, at least, seriously and solidly grounded. And the purpose of your *Academy* is precisely to discern and to make known, in the present state of science and within its proper limits, what can be regarded as an acquired truth or at least as enjoying such a degree of probability that it would be imprudent and unreasonable to reject it. In this way unnecessary conflicts can be avoided.

GEO Again, the *Academy* has accepted only one science, the prevailing Evolutionist/Big-Bang/Relativity kind of science, and has rejected everything else. Those theories are not “acquired truth” and they do not enjoy “a degree of probability that it would be imprudent and unreasonable to reject it,” for they are all theories made up to avoid the other science which dictates against them.

JPII 14.

Those who engage in scientific and technological research admit as the premise of its progress, that the world is not a chaos but a “cosmos”— that is to say, that there exist order and natural laws which can be grasped and examined, and which, for this reason, have a certain affinity with the spirit. Einstein used to say: “What is eternally incomprehensible in the world is that it is comprehensible”.⁽⁹⁾ This intelligibility, attested to by the marvelous discoveries of science and technology, leads us, in the last analysis, to that transcendent and primordial Thought imprinted on all things.

GEO Again, we have another tribute to Einstein in this speech. We get the impression that whatever Einstein says, that is the way the world works. But Relativity is a sham; a pseudo-science of the highest order. The truth of the matter is that Einstein himself said that if the Michelson-Morley experiment of 1887 was wrong, then the whole theory of Relativity was wrong. Einstein said to Sir Herbert Samuel: “If Michelson-Morley is wrong, then relativity is wrong.” (*Einstein: The Life and Times*, p. 107) The fact is, the Michelson-Morley experiment WAS wrong, or at the least, it didn’t give the results that Relativists claim it did. The M-M experiment is touted as discovering that there was no aether entrainment around the earth. From this supposed evidence, Einstein had two alternatives. Either he would have to admit the earth did not move, or he would have to invent a whole new physics to explain it.

For there seemed to be only three alternatives. The first was that the earth was standing still, which meant scuttling the whole Copernican theory and was unthinkable. The second was that the aether was carried along by the earth...The third solution was that the aether simply did not exist, which to many nineteenth century scientists was equivalent to scrapping current views of light, electricity, and magnetism, and starting again. (*Ibid.*, p. 110)

As everyone knows, Einstein chose the latter option and he turned physics on its head. But the truth is, the M-M experiment, even with their prototypical equipment, showed a small positive result of the presence of aether, yet today’s textbooks continue to claim M-M had a null result. The presence of aether was followed by Sagnac in 1913, and again by Michelson-Gale in 1925, and again by Dayton Miller in 1933, and again by Herbert Ives in 1943, and by dozens of other researchers. In fact, Miller used instruments three times as sensitive as Michelson-Morley, and performed 100,000 experiments, whereas Michelson-Morley only did 36. Miller told the scientific community that his results were in agreement with the positive results of Michelson-

Morley. But what did the Relativist camp do with this information? You guessed it. They suppressed it. In fact, Einstein enlisted the services of R. S. Shankland to discredit the work of Dayton Miller. How did Shankland accomplish this charade? He only used the results from Miller's experiments that had been rejected by Miller himself, since those results had aberrations due to equipment problems or thermal conditions. Letters from Einstein to Shankland show that Einstein is very aware that Miller's experiments were a stumbling block to Relativity theory. In a letter to Shankland, Einstein writes:

I thank you very much for sending me your careful study about the Miller experiments. Those experiments conducted with so much care, merit, of course, a very careful statistical investigation. This is more so as the existence of a not trivial positive effect would affect very deeply the fundament of theoretical physics as it is presently accepted. (August 31, 1954)

As anyone without a bias can see, the whole theory of Relativity is based on one experiment in 1887 whose data was falsified, or at the least, misinterpreted. It is no wonder that Einstein makes no reference to the 1913 Sagnac or the 1925 Michelson-Gale experiments which proved that aether exists; and Einstein did his best to silence Miller. These are the facts that people today don't know, or at least wish to ignore. Unfortunately for them, once Einstein's tricks and falsifications are exposed, then the whole Big-Bang /Evolutionary /Galilean /Relativity sham will be brought to nought for the deception that it is; and I will do my best to bring that knowledge to the world, so help me God.

NOTES

(1) *AAS* 71 (1979), pp. 1464-1465.

(2) Letter of 21 November 1613, in Edizione nazionale delle *Opere di Galileo Galilei*, dir. A. Favaro, edition of 1968, vol. V, p. 282.

(3) Letter to Christine de Lorraine, 1615, in Edizione nazionale delle *Opere di Galileo Galilei*, dir. A. Favaro, edition of 1968, vol. V, pp. 307– 348.

(4) Letter to Fr A. Foscarini 12 April 1615, cf. Edizione nazionale delle *Opere di Galileo Galilei*, dir. A. Favaro, vol. XII, p. 172.

(5) Saint Augustine, *Epistula* 143, n. 7 PL 33, col. 588.

(6) *Leonis XIII Pont. Max. Acta*, vol. XIII (– 1894), p. 361. Cf. *Pontificia Academia Scientiarum Copernico, Galilei e la Chiesa*. Fine della controversia (1820). Gli atti del Sant'Ufficio, a cura di W. Brandmuller e E. J. Giepl, Firenze, Olschki, 1992.

(8) Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et spes*, n. 36, par. 2.

(9) In *The Journal of the Franklin Institute*, vol. 221, n. 3, March 1936.

Endnote 9 is a dead giveaway that the whole piece was written by Fr. Stanley Jaki, PhD, since he lives not too far from the Franklin Institute in Philadelphia; an institution the Pope has probably never heard of.

(Text from *L'Osservatore Romano*, 4 Nov 1992)

More on satellites

AC We've gotten into several related topics in this dialogue, which I think has caused it to lose focus. Therefore, for the sake of clarity and also brevity, I've confined my remarks in this response to just the issue of geostationary satellites, because I think they are the best evidence for my position, and because I don't think your theory can account for their behavior.

GEO My reading-between-the-lines of your above proposition is that you don't have answers for the numerous points I have given you. I disagree with you that those issues will "cause us to lose focus," since they are directly related to your whole understanding of motion, gravity, Relativity and the like. But if you insist on responding only to the matters concerning the GSS, then I will do so. But I am making a statement, for the record, that you have refused to answer the other matters I have brought to your attention.

AC I certainly can't entertain an alternate view that doesn't work. The view you hold might be able to account for the motion of the planets and stars, but I don't see how it can account for the daily north-south, east-west, and in-out oscillation of geostationary satellites. Those satellites behave exactly as if they were in slightly elliptical, slightly inclined, orbits around a rotating earth. They ****don't**** behave as if they were suspended at the equilibrium point between two opposing forces, nor do they behave as if they were suspended by an electromagnetic band.

Please explain to me how the forces in your geocentric world can cause a satellite to trace out a figure-eight every day over the stationary earth.

No, I don't like the idea of explaining that geostationary satellites behave exactly as if they were in slightly eccentric orbits around a rotating earth by throwing up my hands and guessing that there must be some unknown forces out there that just happen to exactly simulate orbital behavior. You might as well attribute their behavior to poltergeists. That would be about as plausible.

GEO No, I didn't say it was an unknown force. I said it was the force caused by the rotation of the stars around the earth. If that force results in what we also understand as gravitational or electromagnetic forces, either caused by or held in position by, the rotating stars, then that's all I need to show. You, on the other hand, have the unenviable task of proving that the forces we experience by a so-called rotating earth are NOT, and neither CAN BE, the forces caused by a stationary earth and a rotating star system.

If there is oscillation and inclination in any of the satellites, in my system it would be due to the forces of oscillation and inclination produced by a rotating star system, just as you account for those oscillations and inclinations by a rotating earth. Unfortunately, you do not seem to grasp the implications of this principle. Einstein himself, along with all the other physicists I have quoted to you, said very clearly that the same precise motions you attribute to a rotating earth (including any gyrations you see in figure-eights or tear-drop land-based observations) are also

attributable to a stationary earth in a rotating star system.

I suggest you go back and re-read the information I gave you. That material, written by highly qualified physicists, shows that you simply cannot prove a rotating earth in a Relativistic system, but that's what you are stuck with if you believe that all the heavenly bodies move. So you can save us both a lot of time and energy, and spare us the details of Iridium's and Cosmos' oscillations and inclinations, but showing us how your proofs eliminate attributing the motions of the satellites, including the moon, to a rotating star system. That is your task, but not only have you not answered it, I don't believe you fully comprehend it.

My other arguments about apogees and perigees contained in circular or elliptical orbits are just toying with your system to get you to explain how they can be so accurate and yet move so fast. You skipped right over those questions. That's all that discussion is good for. I am not using the differences between apogee and perigee to explain WHERE the force for the motions of the satellites originates. In my system they originate from the rotating star system against a fixed-earth; in yours they originate from a rotating earth against a fixed-star system. Let me say it again: according to your best physicists, there is absolutely no difference between those systems, and thus ALL the motions attributable to one can be attributable to the other. If you want to prove a rotating earth, then you need to disprove Einstein's own admission that he could not distinguish a rotating earth from a rotating star system.

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AC You've said that according to the Lense-Thirring effect "a rotating shell causes centrifugal and Coriolis forces for objects within the shell that are akin to the centrifugal and Coriolis forces we experience on earth." Okay, fine. But the centrifugal forces we feel on earth are insignificant. They aren't enough to suspend a feather in mid-air, much less a four-ton satellite. Yet this is what, for lack of anything else, you guess must be holding up the geostationary satellites. Of course, those satellites are 22,236 miles closer to the rotating shell, so you propose that this distance marks the equilibrium point between earth's gravity and the centrifugal force from the rotating shell of stars. But then you can't explain how the *Chandra X-ray Observatory* glides out four times farther away from the earth than this alleged "equilibrium point" but is still turned around and pulled back, just as if no such equilibrium point existed. Unless you can explain how the Lense-Thirring effect, or some other force, accounts for the motion of ****both**** the geostationary satellites (including their daily oscillation) ****and**** the orbit of *Chandra*, I think I will have said all I have to say about this.

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GEO You need to go back and learn the physics. It is precisely the centrifugal effect which your system acknowledges as the force which keeps the satellites in their orbit. Your system says that if you accelerate a satellite fast enough in earth's gravity, it will produce a centrifugal force which will keep it from falling to the ground. In your system, the orbit of a particular satellite (elliptical, circular, parabolic, hyperbolic, etc) is due to the mass, velocity, inclination and any other dimension one has given to the satellite. Since all of these factors vary from satellite to satellite, in your system there are going to be different orbits for different satellites. In each case, you will attribute the speed required to maintain that position as being the sum of the earth's speed of rotation plus the speed required to generate enough centrifugal force so that the satellite does not fall to earth. Now, let me say it once again – the same principles are true in my

Geocentric system, only it's the force of the rotation of the stars against which the technician must determine the orbit of the satellites. All the forces in your system and mine are precisely equivalent. The only difference is that you claim yours comes from a moving earth against stationary stars; while mine comes from a stationary earth against rotating stars. I hope you understand now.

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AC Your explanation for why geostationary satellites don't fall is implausible. You simply assert, with no evidence, that there must be some sort of counteracting force up there that just happens to be exactly strong enough to suspend the satellite in mid-air. That's not a reasoned response to my evidence, it's simply a wild guess designed to plug a huge hole in your theory. Unless you can show me what causes this mysterious force, and unless you can account for the motion of satellites like *Chandra* in light of the existence of this force, your theory has been disproved. Further, my theory can account for the daily rhythmic motion of geostationary satellites (they are in slightly elliptical orbits around a rotating earth). Unless your theory can also account for that motion, it has been disproved.

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GEO Again, the above paragraph shows that you don't understand the Einsteinian/Machian/Lense-Thirring principle that I carefully cited for you previously. Somehow you have entertained the notion that forces generated in a rotating earth/fixed star system are different than those in a fixed-earth/rotating star system, but that is simply not true, and I will keep driving home the point if you want to be a "glutton for punishment" (the words you used about me).

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AC No, it's simply the equilibrium point between two known gravitational sources. If you move closer to the earth from that point, the earth's gravity will be stronger; if you move toward the moon, the moon's gravity will be stronger. That means that if you release an object on the lunar side of this equilibrium point, it will fall toward the moon. But you've postulated a neutral gravity zone between the earth and the stars at only 22,236 miles above earth. If that were the case, then objects placed on the stellar side of that zone would fall toward the stars. But that's not what really happens. The *Chandra X-ray Observatory* goes four times farther from earth than your alleged equilibrium point, yet earth's gravity still turns it around and pulls it back. Therefore, there is no neutral gravity zone at 22,236 miles from earth, and your theory is disproved.

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GEO Oh, you mean like that magical force from the moon you were talking about which somehow picks up the water in the oceans but leaves all the land mass at its original height?? I can see now why you wanted to dispense with having to deal with that "out of focus" topic. I think what you're finding out is that proving the earth rotates is not as easy as you once thought it to be.

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AC Depends on who I'm trying to prove it to, I suppose.

GEO Yes, I guess if you were trying to prove it to someone who didn't know how to use Einstein's own Relativity against him, you might be able to win the argument. Some woman in an Internet discussion said it best. She asked her husband about all this geocentric stuff. According to her, the husband has two degrees from Harvard. He told her that, because of Relativity, no one could prove whether the sun went around the earth or the earth went around the sun. Bravo! That was probably the smartest comment made in this whole dialogue. And because of that brilliant deduction by our illustrious Harvard graduate, that is why it takes divine revelation to know that, of the two systems, the one in which the sun goes around the earth is the correct one, since that's what the *Bible* tells us; that is what the Fathers taught; and that is what the Church has confirmed in an official statement. And according to St. Augustine, and the Church who backs him up, we must accept those cosmological statements from Scripture as the literal truth, unless there is indisputable evidence to the contrary. Since you hardly understand the Lense-Thirring effect, let alone have been able to explain how it cannot dispense with your so-called "proofs," then you're hardly in a position to provide us with the indisputable evidence.

It is becoming quite obvious that you make the sun and stars weak or strong depending on what you are arguing at the time.

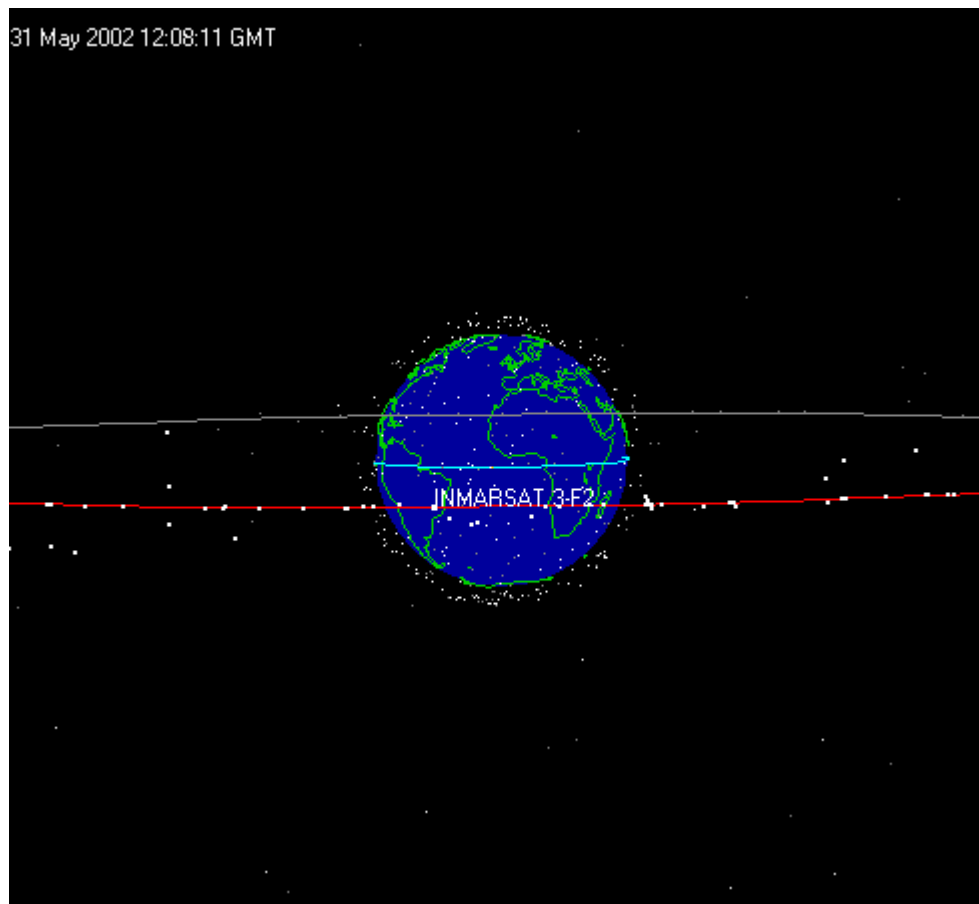
AC No, what's becoming quite obvious is that you don't seem to be able to understand Newton's Law of Universal Gravitation. Even if you disagree with that law, you should at least be able to recognize that my arguments are consistent with it, and that I am not contradicting myself. As I've said several times now, the gravitational attraction of the sun is weak or strong depending on the mass of the object it's pulling on, and its distance from that object. The sun is strong enough to make the earth orbit it, but its effect on ****you**** is negligible. Otherwise you would be much lighter during the day (when the sun is overhead) and much heavier at night (when the sun is on the other side of the earth, pulling you down).

GEO Oh, I see. Once again, your gravity has a mind of its own. This "magical" gravity of yours can not only distinguish between water and land when it needs to make the tides on earth; it can also distinguish night and day and which side of the earth is facing the sun. It's remarkable how this gravity – a force of which you haven't the slightest idea how to account for physically – can do such stupendous things for you, at will. And you think I'm the one with the Medieval pseudo-science?! In the LaSage system of gravity, the aether easily explains why we don't weigh more during the day, since the corpuscles don't decrease on the dark side of the earth. But I would think you would have a hard time explaining this difference, since your force of gravity depends on the distance from the sun, which is greater at night than it is in the daytime.

I think it is obvious that since you have not proven that an alternate system of a fixed-earth and rotating stars cannot be discounted by using the accepted principles of physics, then you haven't proven that a Heliocentric universe is true, let alone the only viable option we have. Since your system contradicts a literal interpretation of Scripture; the testimony of the Fathers; and the official statements from our Popes, then it seems I am obligated to remain with their testimony and to reject yours.

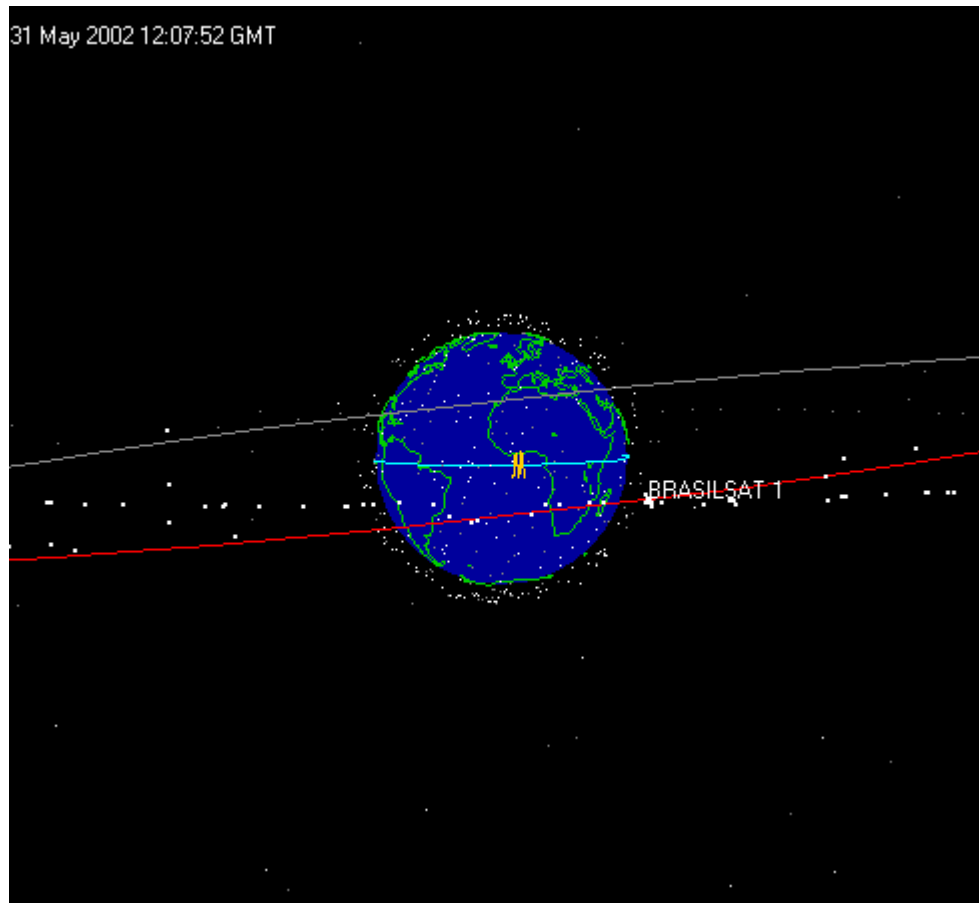
Some NASA flight patterns

AC But how, then, do we account for the figure-eight pattern traced out every day by *Marisat-3*? Like this:



AC This satellite's orbit is significantly inclined with respect to the equator, so every day as it follows its orbital path, it goes up above the equator and then down below the equator. Because it orbits in synch with the earth's rotation, it appears (to a person on the ground) to be moving straight up and straight down, tracing out an up-and-down line over the earth. But there's one additional factor to consider. This satellite's orbit isn't perfectly circular, it's slightly elliptical. That means that the satellite will speed up and slow down slightly as its orbit carries it slightly toward and away from the earth. But as it speeds up, it will temporarily be going faster than the earth is rotating, and it will appear to move slightly to the east relative to the ground. As it slows down, it will temporarily be going slower than the earth is rotating, and it will appear to move slightly to the west relative to the ground. Because it's moving slightly east-and-west as it's also moving significantly north-and-south, it traces out a perfect figure-eight over the surface of the moving earth.

AC Finally, *Brasilsat-1*'s zig-zag ground-track is caused by this orbit:



AC As you can see, this orbit is also significantly inclined with respect to the equator. If *Brasilsat-1* were truly orbiting in synch with the earth's rotation, it would trace out a straight line up-and-down every day. But this satellite is no longer in a truly geosynchronous orbit. It's now orbiting slightly closer to the earth, which means it's moving just slightly faster than the earth is rotating. Therefore, as the satellite traces out its up-and-down motion, it's also constantly moving to the east relative to the ground. That's what makes it trace out a zigzag path, like a pen on a seismograph.

So, if the earth is rotating, the motion of all three satellites relative to the ground can be easily explained. Now, let's consider a geocentric universe.

Non-Rotating Earth: The earth is stationary, and therefore those three satellites aren't orbiting the earth at all. In that case, their motion over the ground isn't apparent, it's actual. In other words, *Inmarsat-3-F2* is just hovering over its spot on the equator, not moving much at all. Meanwhile, *Marisat-3* is actually moving in a figure-eight pattern, around and around, once each day. And while *Marisat-3*'s going around in graceful circles, *Brasilsat-1* is moving in a constant zigzag toward the east. This satellite, then, really is orbiting the earth, but it takes it a month or so to complete a single orbit.

Here's the rather obvious problem with this scenario: If the rotating sphere of stars is exerting a force on these satellites, it's going to be exerting the same force on all three satellites. In other

words, the same force that's acting on *Marisat-3* is also acting on *Inmarsat-3-F2* and *Brasilsat-1*. The sphere of stars isn't rotating any differently for one satellite than it is for the other two. Therefore, however this force affects these satellites, it would effect them in the same way. If it acts to pull them toward the east, then all three should be pulled toward the east; if it acts to make them go in a giant figure-eight, then all three should go in a giant figure-eight. There's simply no way to account for the radically different motion of these three satellites that are all under the influence of exactly the same forces. To claim otherwise, as in the geocentric system, would be like placing three tennis balls on the same ramp and expecting one of them to roll down the ramp in a zigzag pattern, the second one stand still, and the third one roll around in a figure-eight. It's simply not possible.

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GEO I already explained this in a previously, but let me try to make it clearer. Here's what you have miscalculated. Yes, the force of the stars is going to be the same, but because each satellite has a different mass, velocity, height and is sent up with a different inclination, then the results of the force from the stars will be different for each satellite. You can prove this to yourself by holding a gyroscope at different angles and note the different forces caused by different inclinations. The force of the stars will be the same, but the pull or push against the stars will be different for each satellite depending on how it is first placed in the sky. I will explain more below.

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AC Obviously, this is not possible, and that's why your following comment makes no sense:

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GEO You have just assumed that a rotating star system is somehow different than a rotating earth. But I've shown you at least a dozen times already, based on Einstein's own equations, that there is no difference. Each motion, or non-motion, you attribute to a rotating earth can be attributed to a rotating star system. THERE IS NO DIFFERENCE.

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AC In terms of the stars, you might be right. The stars appear to move around the earth in a perfect circle, and there's no way to tell just by looking whether that motion is caused by a spinning earth or by rotating stars.

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GEO Now, before I add to the explanation of the satellites, it is noteworthy that you have just made an important admission – that neither you nor anyone else can prove whether the stars go around the earth or the earth goes around the stars (his “proof” from the GSS satellites, notwithstanding). You have just admitted what I have been saying all along, and the most basic thing I have been arguing – that no one can prove the earth goes around the stars. Since that is the case, then someone who posits that we should listen to the Fathers who taught Geocentrism, listen to the popes and Saints who censored Copernicanism, that we should take Einstein at his word and accept that the same forces occur in both a Geocentric and Heliocentric universe, that we should listen to Scripture and understand it in its “obvious and literal sense,” such a someone has much on his side to present his case. Thanks to your admission, I couldn't have argued the point better myself. I am deeply indebted to you for your courage.

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AC But that is not the case when we consider geosynchronous satellites. You can't just flip things around and claim there's no difference. I've clearly explained how the motion of these three satellites is accounted for in a rotating-earth system. They're moving in more or less circular and more or less inclined orbits around a rotating earth and their motion over the ground is simply what you get when you combine these two motions. But their motion over the ground simply cannot be accounted for in a non-rotating earth system, because in that case we have to say that they really are moving in crazy patterns over a motionless earth. You simply cannot explain how the same force, operating on nearly identical satellites, at approximately the same altitude causes those satellites to move in radically different ways (or, in the case of *Inmarsat-3-F2*, not to move at all).

I think I've proved my point, and if you can't see that, perhaps I'm not the one who's out of my league discussing physics.

=====

GEO I see what you've tried to slip by me. You said: "...the same force, operating on nearly identical satellites, at approximately the same altitude causes those satellites to move in radically different ways." The problem is that the satellites are only "NEARLY identical" and are only "APPROXIMATELY the same altitude." The fact remains, they are not the same. And any physicist will tell you that to the degree they are different will result in a difference of motion. Moreover, you forgot to mention that the satellites are SENT UP with a particular inclination. If so, the satellite must work and move to keep that inclination, otherwise its orbit will decay. And if in that inclination it must exert appropriate centripetal forces in order to keep that inclination, then we are going to see slightly different movements from it as the centrifugal and centripetal forces balance each other, than from a satellite at a perfectly equatorial or circular placement. (And, by the way, I am only arguing on the basis of a "same force" basis for the sake of argument, since in LaSagean mechanics, there are slightly different forces of gravity on objects depending on their shape and position with respect to the earth. I think this is at least worth mentioning, since you don't even know what the nature of gravity IS, yet you make all kinds of claims for gravity based on fixed-earth mathematics, which I find quite ironic).

Let me make an analogy to help see this a little clearer. It's not a perfect analogy, but at least it helps visualize the concept. Let's say there are three men practicing how to descend in mid air from an airplane. To practice, they are placed over a giant air chamber that shoots air upwards at 70 mph. I'm sure you've seen them do this. In order to stay at a certain height above the air chamber each man must position himself directly horizontal to the air chamber flow, and curve his arms and legs in such a way so that his body allows just the right amount of air to pass over him and just the right amount to hit him so that the force of the air holds him up against the force of gravity. He must attain this equilibrium or else he will either rise to the roof or hit the ground. In this analogy, the force of air going upward represents the gravitation force from the rotating stars. The men represent the satellites.

Now, let's suppose that each man has a different build, a different weight, a different jump suit, and a different angle or position he wishes to maintain in the air chamber. What, for example, will a short man who weighs 150 pounds with a loose fitting jump suit and who wishes to float with his head slightly up have to do compared to a tall, broad-shouldered man who weighs 250

pounds with a tight fitting jump suit and who wishes to float with his feet slightly elevated? He will have to flex his body a little differently than the other man to make up for the difference in his bodily dimensions. He would, for example, have to cup his body slightly less so that a little less air hits his body than the man who has bigger mass and weight.

Now transfer this analogy to the satellites. Due to the fact that each satellite has a different mass, velocity, inclination, etc, they are going to react differently to the same force of star gravity acting upon them. You have already admitted that *Marisat-3* was sent up into space with a different inclination than the equatorial satellites. Thus, that means that it must have within its centripetal motion forces exerting against the tide of gravity from the stars. If it exerts different forces, than this will show up in some kind of movement, no matter how slight.

This explains why the dancing satellites (as you pointed out) all have different motions. Some are tear dropped; some are figure-eights; some are zig-zag. Why? Since all of them have been sent up with different inclinations and have different weights and shapes, they will all produce different movements. That is to be expected.

This brings home another point. As I mentioned before, in your universe, the Coriolis and centrifugal forces are, as Einstein said himself, “fictitious forces,” or as Gron and Eriksen said “a sort of trick.” Well, the same thing is true for your explanation of the movement of the these zig-zagging satellites – their movements are fictitious, since they only “appear” to be moving. Unfortunately for you, this is how you explain the motions of the stars we see in the sky – they only appear to be moving. Now, you’ve already admitted in that: “In terms of the stars, I might be right. The stars appear to move around the earth in a perfect circle, and there’s no way to tell just by looking whether that motion is caused by a spinning earth or by rotating stars.” So you’ve already conceded the point that apparent motion in your universe may in fact be real motion in a the real universe. Well, I’m just applying this same principle to your “apparently” moving satellites. Since each satellite, because it is sent up with a different inclination, must react differently to the gravitational force of the stars, thus we would expect to see REAL reactions from them, not apparent reactions. The only reason you are forced to call them “apparent” reactions is that such is the only way to explain them if you’ve already assumed that the earth is rotating.

Drag forces in space

AC If the cosmos with all its forces which are interacting with everything else in space is rotating around the Earth, why don’t those forces drag upon the surface, or electromagnetic fields of the Earth and cause it to also rotate? What keeps the Earth stationary in a fixed non-rotating state when everything else is pulling on it? Do you attribute this assumption based on Divine Intervention holding the Earth stationary or do you think that there is a natural cause for it to remain non-rotating?

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GEO First, the drag argument actually works against the heliocentric view, since it would require the believers in it to show why the drag of opposing gravitational forces in the solar system does not stop the planets dead in their tracks. Newton saw this problem, but didn’t know what to do about it, except to say that God had to come in every once in a while to fix things. They’ve tried to solve this problem using computers, but the motions are so complicated with just three moving bodies that they have no idea what holds the solar system together with dozens

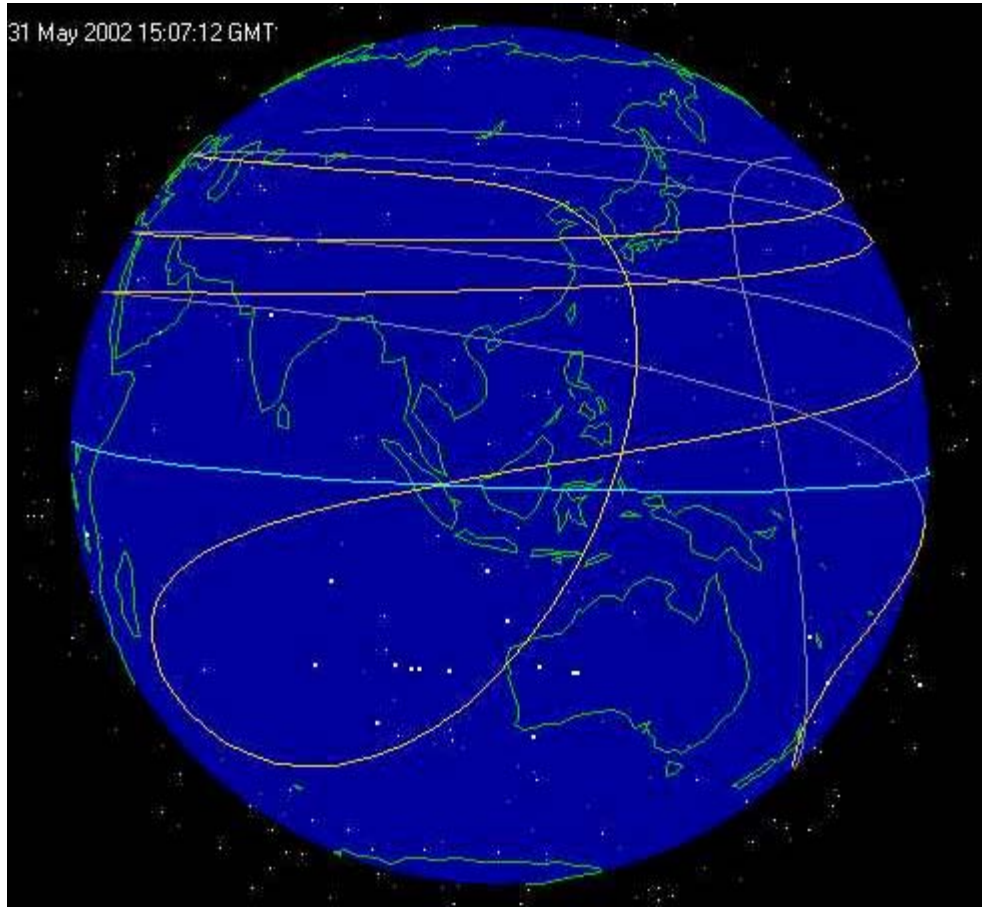
of bodies all interacting against one another. Poincare (Einstein's mentor) struggled with this all his life.

Second, in the eye of a hurricane you have calm. That is what the earth is to the rest of the universe. The earth can stand still by the same principle that the frame of a gyroscope can remain still while the wheel inside moves. Also, the force against the Earth is very slight. Miller (1933) showed that the aether drift against the earth was very small. In fact, he said that his results were the same as the small positive results of the Michelson-Morley experiment of 1887. Unfortunately, scientists wrongly interpreted Michelson-Morley's results as being null, and thus Relativity was born to save them from having to say that the earth was standing still (Einstein himself admitted that).

Third, the forces created by the rotating shell of stars causes the equivalent of Coriolis and centrifugal forces in the Newtonian system. These forces act against the aether so there is no movement of the earth. Fourth, Scripture, literally interpreted, says God "hangs the earth upon nothing" (*Job 26:7*). The way I interpret this is that there is nothing but a cancellation of opposing forces that is holding the earth where it is.

Chandra, Marisat-3 & others

AC Now, remember, if the earth isn't moving, it means that *Chandra* actually has to follow this path in reaction to the "forces from the stars." So, while *Marisat-3* is tracing out its lovely figure-eight, *Chandra* goes diving south across the western United States (the gray line in the image), makes a giant loop around the South Pacific, then goes spiraling up around the Northern Hemisphere a few times before taking a nose-dive off the coast of Japan, making another giant



loop around the Indian Ocean, and then spiraling up around the Northern Hemisphere again.

AC Either that or the earth rotates and *Chandra* orbits in a perfect ellipse.

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GEO You didn't include the third option – the one that is actually the case. Your pictorial exhibit of *Chandra*'s movement is not real. It is a computer-generated image of the trajectory *Chandra* would transcribe on the earth if the earth were rotating. The computer merely calculates what the path of trajectory would be if it is given information that the earth is rotating, along with the speed, inclination and foci of *Chandra*'s orbit, and then the computer just plots it on a graph. And then *NASA* puts it on a screen for you to download and then you show it to a waiting audience as your "proof," and no one is the wiser. It's very clever, but it doesn't prove the earth is rotating. All it proves is that the virtual imagery of *NASA* is alive and well. They use it all the time. I have a lot of information on it if you're interested.

We can prove this is the case if you consider some facts about *Chandra* and the line that is transcribed on the pictorial. First, *Chandra* only has three land-based tracking posts on earth:

California, Spain, and Australia. They don't have posts in China, India, Africa, and almost all of the other places *Chandra* is said to traverse on your map, and thus those locations would not be able to tell if *Chandra* crossed their latitudes. What's even more revealing is that 75% of the path of *Chandra* in the pictorial is over the oceans. I'm sure they don't have any tracking stations in the oceans, so they couldn't tell if *Chandra* was ever over the ocean. So, by all appearances, you've been duped by a computer.

By the way, the same is true for your other images. They are all computer-generated on the basis of a rotating earth and the specified orbit, but that doesn't mean at all that the earth is rotating. It just means that somebody can plug in numbers and get the desired effect from computer graphics. Essentially, all they have done is used the fixed-earth math in reverse. They send *Chandra* into its orbit based on fixed-earth math (as they do with every satellite), but then they use computer-generated virtual imagery to show you what it would look like if the earth wasn't fixed. How clever of them. You see, there's a big difference in watching the stars go around the earth in a perfect circle and concluding from that evidence that they are actually moving, as opposed to watching virtual imagery from *NASA* generated from a computer and claiming that the earth rotates: The stars are real; the virtual imagery is not.

As it stands, virtual images are not proof for a rotating earth. And since you've already scuttled your other non-satellite proposals for proving a rotating earth by admitting that a fixed-earth gives the same results as a fixed-star system. You wrote: "In terms of the stars, he might be right. The stars appear to move around the earth in a perfect circle, and there's no way to tell just by looking whether that motion is caused by a spinning earth or by rotating stars." And since you have refused to answer the 30 questions I posted to you this morning, then I guess you're fresh out of answers, and we'll have to bring this session to a close.

The pendulum and parallax

AC Here is proof that the Earth indeed revolves around the sun. It is based on observations, as you have requested. The Earth rotates on its axis every 24 hours and revolves in orbit around the Sun once every year. Using a Foucault pendulum we can see that the Earth rotates around itself. The pendulum swings in the same plane as the Earth rotates beneath it. At either pole, the swinging plane mirrors the Earth's 24 hour period. Some rotation is observed at all other locations on the Earth's surface as well, except for the equator.

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GEO No, the Foucault Pendulum does not prove the earth rotates, since Einstein, J. Lense, Hans Thirring and Ernst Mach proved that the same effects seen in the pendulum can come from a rotating star system against a stationary earth. The effects are exactly the same.

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AC The most direct observational evidence for Earth's orbital motion is the shift of nearby stars after a period of time (as the Earth moves from one side of its orbit to the other.) Because of the large distance to any star, this shift – called parallax – is too small to be seen without a telescope. Parallax is essentially defined as the motion of a relatively close object compared to a more distant background as the location of the observer changes. Astronomically, it is half the angle which a star appears to move as the earth moves from one side of the sun to the other.

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GEO No, parallax does not prove the earth rotates or revolves, since the parallax can be accounted for by the varying degrees of the rotation of the stars. If I could draw you a diagram, I would show you, but this email doesn't have the capability.

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AC Surely you will agree that since astrological bodies move during the year, either the entire universe moves, or just the Earth. If the above were not sufficient to prove the latter, consider geosynchronous satellites. You cannot deny that there are literally hundreds of satellites orbiting the Earth: they take pictures, allow such things as televisions and radios to broadcast, etc. These satellites need to be perfectly synchronized with the Earth, or else they cannot work. Since they ARE working, this means that they are moving WITH the Earth. If the Earth were stationary, the satellites themselves would be stationary. However, we know they are not stationary, implying that the Earth is moving as well. If you require further proof that these satellites exist, various information is available online, including the NASA website.

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GEO I have a whole discussion on my website about the GSS. They don't prove the earth rotates, since according to the same Einsteinian/Lense-Thirring/Machian effect, the GSS can be held motionless above the earth by the centrifugal force created by a rotating star system. I suggest you consult the discussions on my website for further information.

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AC Furthermore, I would like to include my own opinion here. Proving the Earth revolves around the Sun does not, in any form, now, before, or ever, belittle what the Bible says. It does not belittle Jesus Christ's teaching. It merely broadens one's horizon. Disproving a belief of the church does not automatically invalidate every single other belief of the church. I would like to further add that the Bible was written before any modern technological advancement. As a result, some observations – SOME, not ALL – should be revised. I would once again like to emphasize the fact that the *Bible* and Jesus teach brotherly love, not scientific fact.

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GEO If you want to shift us from a literal interpretation, then you'll first have to prove that the earth rotates and revolves. Otherwise, the Church demands that we interpret Scripture in its "literal and obvious sense," according to Pope Leo.

Stars & the speed of light

AC Pick a star in the night sky one light year away. Not hard – they all are except for the sun. Assume that the earth is stationary at the center of the universe. Therefore as I see that star travel across the night sky, which it will do in less than 24 hours, and if I calculate the distance that star must have traveled, we would see that its speed comes out to be far exceeding that of light.... replicated experiments have shown that massive bodies cannot exceed the speed of light.

Now if you argue that the Earth is at the center, but is rotating, then this can be explained.... however, if we take the parallax motion of the star (how its position changes over the course of a year, something that we can observe and expect under heliocentric theory) we can get the same result. Heavenly bodies moving faster than light, which, in every case ever observed, are impossible.

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GEO Not if the star is embedded in aether – an aether which is rotating. You would have to prove that aether does not exist in order for your proof to qualify. So far, the Sagnac experiment of 1913; Michelson-Gale of 1925; Miller of 1933; and Ives of 1943 have all proven the existence of aether.

Star shift

AC The aberration of light is a phenomenon that causes all the stars in the sky to appear to move in small ellipses once per year (almost circular ellipses near the north and south poles of the ecliptic, very flattened ellipses near the ecliptic, and ellipses of varying eccentricity in-between). The heliocentric explanation of this phenomenon is that the earth is moving round the sun at about 18 miles per second, and this causes light falling on the earth from above (say, from a star in the constellation of Draco near the north pole of the ecliptic) to appear to be arriving along a slanted path, very like the way that rain falling vertically appears to be falling diagonally when viewed from a moving vehicle like a train. The effect is very small, and is exactly the size expected by dividing the speed of the earth moving round the sun by the speed of light.

How does the geocentric theory explain this phenomenon?

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GEO It is explained in one of two ways: (1) the same effect would be observed if the stars are centered around the sun and partake of the sun's annual motion around the earth. (2) the sun has an aether field attached to it that sweeps past the earth with a period of one year. The sun's aether would drag the starlight with it and an aberration would be observed. Science knows this as the Fresnel Drag, and it is readily observable.

Philosophy of science; whose errors?

AC You do not seem to understand the philosophy of science, in point of fact, it appears you are operating under a philosophy of science that dates back to the early Greeks. This is most clearly seen in the following question you pose: "Can it be proven, by direct and irrefutable scientific evidence, that the Heliocentric (having the sun as the center) system is the ONLY viable system to understand the universe." Science no longer makes such claims for its world view and to expect such claims is a complete misunderstanding of science and its role in serving man.

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GEO Thank you for the admission that science no longer makes such claims for its world view. There are, of course, many in the science establishment who would disagree with you, but let's just take the ones that agree. If a Relativistic universe is what we are left with, then it is my claim that no one has the right to say Scripture's teaching [that the sun goes around the earth, and the earth stands still] cannot be taken at face value. In fact, I believe that is the proper interpretation, since Catholicism has always held to a literal interpretation of Scripture unless science or history can prove it otherwise. But since you admit that science does not even work in the vein of proof any longer, then it is futile for science to make claims on how Scripture should be interpreted. That is precisely the point I am trying to establish, and I am using the unproven

and anomalistic beliefs of science in order to further the cause.

AC Your next error is fear of science I see expressed by you and can be demonstrated most clearly in your statement:

It effects your view of the Church because if it can be proven that, after the Church clung (sic) so tenaciously to the view that the sun revolves around the earth, that the Church finally has to admit she was wrong about one of its more authoritative teachings in the 17th century, this does not bode well for convincing modern man to abide by the Church's official teaching on ANY issue.

I cannot speak for all of modern man, but I can say that a scientist who is true to the philosophy of science today, does not see science or scientific proofs as having any value in an attack on religion or religious positions on any topic. Certainly no one who understands the issues at hand would make the logical jump to questioning the Church on ANY issue.

GEO You're certainly entitled to your opinion about the men in science, but it just so happens that the Catholic Church has a *Pontifical Academy of Science* that advises the Pope on scientific matters. Thus we have an institutionalized amalgamation of science and theology which we must confront. It just so happens that all 80 of the members of this *PAS* are Evolutionists, Big-Bang Cosmologists, Relativists, and Copernicans, and because of those views they tell the Pope that Scripture cannot be interpreted on the face value basis we have done for the last 1900 odd years. And since we can't take the *Bible* literally on science issues, well, maybe the *Bible* can't be taken at face value on historical issues either; and perhaps there are a few theological issues it may have been subject to error. Well, to one degree or another, that is exactly what has happened in the Catholic Church. First the science of Scripture was attacked; then its history; and then its theology, and one of the main reasons was due to the belief of Copernicus. This was brought home loud and clear by a recent statement that the *PAS* gave the Pope to read in 1992: "The upset caused by the Copernican system thus demanded epistemological reflection on the biblical sciences, an effort which later would produce abundant fruit in modern exegetical works and which has found sanction and a new stimulus in the Dogmatic Constitution *Dei Verbum* of the Second Vatican Council." So you see that science does affect theology, right to the core of its being.

AC Another of your errors you seem to be espousing is that the Church has spoken authoritatively on the issue of heliocentrism in the sense that it has been declared infallibly that the sun goes around the earth. That simply is not the case.

GEO You're mixing and matching terminology. Perhaps being a scientist you're not familiar with ecclesiastical protocol, but "speaking authoritatively" is not necessarily the same thing as "declaring infallibly." I've never said the Church made an "infallible" decision condemning Copernicanism, but I have said the Church made an authoritative one; and that they did that in 1616 when Pope Urban VIII issued a decree, *in forma communi* (a formal statement) in approving the *Congregation of the Index's* decision to ban Copernicus' books. That is an undeniable authoritative action by the Pope in order to protect the flock against what he

considered harmful to them. Copernicus' books claimed that heliocentricity was a fact. It was only when nine sentences declaring heliocentricity as fact were excised from his books that his books were then allowed to be removed from the *Index* in 1758. No one has ever annulled Urban's condemnation, and it would take a formal and official annulment from another pope in order to reverse what Urban condemned.

AC Another error of yours is seen most clearly when you say "The only thing the Church has done is apologized for the treatment of Galileo, but with no reference to his science views." This, as well, is not true.

GEO If you can find an official statement from the Church which reverses the Urban decree, then you're a better man than I, and I will cease any mention of this issue. But the truth is, there is no official statement from the Church. The only thing that exists is a non-authoritative address that John Paul II gave to the *Pontifical Academy of Science* in 1992. The speech was written by the *PAS* and handed to the Pope to read to them, but it holds absolutely no authority in what the Church officially teaches. The only official statement we have is from Urban VIII.

AC You err in your misunderstanding of the philosophy of science. What needs to be said on this matter depends entirely on what is meant by the term "prove". Science and religion no longer (if in fact they ever did) agree on the underlying concept behind these terms. Since each paradigm, or way of knowing, sets different goals for itself they must inherently measure truth in different ways. Throughout history this was not always clear to all apologists. However since the development of the "white raven" argument it should be clear that the meaning of truth within each discipline is unique. For those unfamiliar with the "white raven" argument I would direct them to an excellent article in *The Economist* of April 25, 1987. For our purposes the following summary should suffice – science no longer claims to even search for truth in the ultimate sense, as that type of truth is now seen to be unknowable (at least within the paradigm of science) and the best science can do is settle for predictability.

Within this "new" philosophy of science a theory is correct when it provides a consistent explanation for all relevant observed phenomena and provides predictive power for phenomena not yet observed. It is important to note that science gets this predictive power by identifying mechanisms which underlie all covered phenomena. Without an underlying mechanism you do not have science – you merely have a set of correlated observations. As Rutherford said "A collection of facts is no more a science than a pile of bricks is a house."

As experiments are formulated and performed to test these predictions, they tend to either confirm or cast doubt on each competing theory. The point at which a theory becomes "proven" or phrased more accurately; accepted as a correct scientific theory is, of course, a matter of taste as much as anything else, as no theory is ever completely proven. This is because no set of complete observations can ever be collected; and thus it is possible some event or phenomena exists which would not fit within the theory (this is the whole point to the "white raven" argument). Still, science does consider some theories to be proven, or to put it another way; they have been promoted from the classification of theory to that of fact. Now to an outside observer

this promotion may seem unwarranted in many cases, but such an observer has no legitimacy in their complaints as they are by definition unsophisticated in their understanding of the discipline (this is what differentiates them as an outside observer). In conclusion, the lay community must come to understand the role of science as being the development of predictive power with the ultimate goal of gaining control over our environment, thus making the world a better place to live. One can even ask, what is the point of knowing a fact if it offers no predictive power? Your answer to this question is what has really generated this discussion, but it is not the answer one would think and is predicated on fear. But before we go on to cover that answer, under another of your errors we need to take a look at the side religion takes in this philosophical issue.

Religion still holds out hope for the knowledge of truth. Within the paradigm of religion there is an appeal to a higher authority, in this case the highest authority, the omniscient God. Obviously God, being omnipotent, has a distinct advantage in the ability to collect a set of all observable phenomena and thus can test all theories to completion deriving the truth of all things. Once you have an all-knowing God, who acts through revelation to disclose truth to His followers, you arrive at the possibility for those same followers to have access to some truth. Note I say the possibility, not the certainty; because we are still dealing with man, fallible and frail as he is, error in interpretation is never far away.

GEO That's pretty close to what I'm vying for. Since science doesn't have the capability to prove whether the earth goes around the sun or the sun around the earth, then we must depend on divine revelation to tell us which one is true. Since both systems work, then all the testing and calculating will not prove anything. Or, as the subtitle of my book says, "Science is at the Crossroads of Divine Revelation." Science can only do so much. After a while it becomes like a dog chasing its tail. It cannot gather enough facts to provide absolute answers. As Max Born said, "science advances funeral by funeral," because what is held today as factual is soon overturned by another set of facts tomorrow. But Scripture never changes. It has always said the sun goes around the earth, and it has always been believed by the Church, from the time of the Fathers, through the Middle Ages, and some even until now. It was the age of Enlightenment that dared science to attempt to gather enough facts so as to put the literal interpretation of Scripture in question. But science soon found that those answers were elusive, at best. They came full circle and, as you have admitted, realized that they can't make any hard and fast rules regarding how the universe operates. The more they peer into the atom and the far away galaxies, the more they realize just how ignorant they really are. And as ironic as it may be, ancient men may have known more about how the universe operates than modern scientists do today, since the former weren't hampered by "science" when they looked into the sky and saw the stars rotating around the earth each night. They believed what they observed, and verified it by what God told them by revelation, and that was the end of it.

AC We also have to consider the possibility that within a narrative (even one revealed from God) there can be layers of truth and points of focus. Where we see a story supposedly expressing one truth, it is entirely possible that the point God was making is entirely another. Any attempt to cull a specific truth from a statement, which God never intended to be there, is a serious error. However, since religion's role is the development of a statement of God's plan (or perhaps just a more readable interpretation), this risk is unavoidable and is not to be faulted *per*

se. This plan, when properly understood, allows man to conform his will to God's, resulting in the ultimate improvement of life. Note I also said some truth, not all truth, and without going into it right now there is another entire branch of philosophy that deals with the issue that no single point of truth can be known without knowing all truths. Epistemology is too large a discussion to get into here, I bring it up only because this is another failure of any position that tries to prove its access to ultimate truth is superior to another, whether that position is based on science or religion.

GEO Yes, the key here is "what God intended." On our own, we may never know, but that's why we have God-given witnesses to help us. First, the Fathers of the Church, in consensus, were all Geocentrists. (There was only one flat-earther, Lactantius). The Church holds that we are to believe what the Father's believed in consensus, for it is held that the Father's clung to those beliefs because they received them from the Apostles. Second, we have the decision of the Church, in an official statement, to reject Copernicanism. That official statement has never been annulled. Third, we have the repeated assertion of Scripture, in a number of passages, that the sun goes around the earth, and the earth is stationary. It is not just one or two verses. We don't have to be puzzled and wonder "what did God intend?," since the abundance of passages giving the same testimony is rather overwhelming. In addition, there are no passages which say the sun stands still (unless by a miracle – *Joshua 10:10-13*) and that the earth moves. Fourth, we have the anomalies of science which can't tell which system is correct.

AC You might be tempted to claim that this is an admission on my part that I cannot "prove" a heliocentric solar system. But that position is only defensible when you usurp an authority you have no basis to claim as your own. For which definition of proof are we to hold ourselves? Religion's definition of truth, or science's? And then, who is to be the arbitrator of which truth? Each person must answer that for themselves. I know I can prove (under the scientific definition) that the sun is the center of the solar system. Some of these proofs would be beyond a layman to understand as the mathematics are quite advanced, but some, I am certain, are well known to you. The issue is not the correctness of these proofs, as much as an unreasonable fear of what it means to religion to accept these proofs. But we must always be cautious to never let fear be a determining factor in choosing our truths. I can't fault you for holding to the philosophy of science that you do, because it is still the one being taught in most of our primary schools. At least there is no evidence of malice in your attempts to call into question heliocentrism.

GEO If you have the proofs, then produce them. I have associates well qualified to go over your math to see if it is what you claim. In fact, the reason I can state what I do about the Geocentric universe is based on the tensor calculus of J. Lense and Hans Thirring who showed, with mathematical proofs, that a rotating star system would produce the same gravitational, centrifugal and Coriolis effects that you attribute to a rotating earth.

AC Your concern is that – "It directly effects how you view God, Scripture, the Church and Modern Man." But the position of science in choosing the heliocentric explanation does not, as

you fear, undermine the authority of the Church or of scripture, as long as one understands the difference in goals of the two separate and unique paradigms. The sun may in truth revolve around the earth, only God knows for sure. But science doesn't care! Science uses the theory that provides the best explanation of observed reality. Religion and science can hold two conflicting positions on the same issue, and not be in conflict, because the goal of each is different and so their judgment on what is true is different.

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GEO I don't think you give me credit where credit is due. I DO use science, but I use LaSagean gravity and non-relativistic mechanics. I seek to have a physical, not just a mathematical, explanation for every phenomenon I see. Newtonian mechanics doesn't have a physical explanation, it only has mathematical explanations. Einstein tried to give a physical explanation, but then he ended up saying that all the physical things could change, with only light being constant. I think that's not good science.

Second, I think you're positing what the late Stephen J. Gould tried to claim in his book *Rocks of Ages*. There he claims that science and theology have "non-overlapping magisteria," or as he calls it "NOMA." But as noble as this course may seem to you, all truth is God's truth, and science is also God's truth; and if it is God's truth, then its theological, especially in the areas in which science is severely limited, i.e., origins and cosmology.

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AC You are further concerned that –

It effects your view of the Church because if it can be proven that, after the Church clung (sic) so tenaciously to the view that the sun revolves around the earth, that the Church finally has to admit she was wrong about one of its more authoritative teachings in the sixteenth century, this does not bode well for convincing modern man to abide by the Church's official teaching on ANY issue.

This concern has some validity as the lay person may indeed be influenced by such failings when science itself is not, but the solution is not to continue to cling to a useless (in the sense that it contains limited predictive power) world view. The correct response is to admit our mistakes; admit the Church cannot speak authoritatively on matters outside of faith and morals, and apologize for past mistakes. All this the Church has done, and your work in defending geocentricity is a step backwards in that regard .

You have insisted that science matters; you should rather insist that science doesn't matter. Science and Religion can disagree without conflict as long as one realizes the goal of each. However one must always be careful to avoid becoming arrogant in claims of access to ultimate knowledge no matter which side you are on.

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GEO If it was not the Church's prerogative to speak on Copernicanism, she would not have done so, but she felt that it was a matter of faith, not science, since Scripture, taken literally, taught that the sun goes around the earth. If Scripture's authority to speak in the area of cosmology was undermined, then their fear was that Scripture would be undermined in other areas. Unfortunately, that is exactly what has happened.

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AC Another of your errors is your insistence that “the Catholic Church has never endorsed the Copernican theory and no pope has ever annulled the decrees of Paul V or Urban VIII. The only thing the Church has done is apologized for the treatment of Galileo, but with no reference to his science views.” While this is true to a point, it is not the same thing as the Church speaking infallibly on this matter. No pope has spoken *ex cathedra* and no Council of Bishops has made any pronouncement on the issue in conjunction with the Supreme Pontiff. You of course have admitted this. The closest you can come is the *Inquisition* (a body the Church has repeatedly had to apologize for), the *Congregation of the Index* (a non-authoritative body within the Church in relation to faith and morals) and the fact that no pope has over-turned any of the pronouncements of these aforementioned bodies. But this last is true only depending on how you interpret the recent statements of John Paul II as we will see in the next section. Still the major issue is that without an infallible statement by the Church on this matter the good Catholic may still hold a view contrary to this until such time as the Church directly instructs him not to.

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GEO I already answered most of this above, but let me add that, yes, he can hold a contrary view, but according to Pope Urban and the *Index*, he cannot hold Heliocentrism as a certainty. Also, the Church does not judge the validity of Urban’s decree by what society deems as appropriate; nor is a pope’s authority in such matters lessened because some in the *Inquisition* may have been a little too enthusiastic.

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AC In October 1992, Cardinal Paul Poupard presented the Pope with the findings of the Galileo study commission, which declared, “From the Galileo case we can draw a lesson which is applicable today in analogous cases which arise in our times and which may arise in the future. It often happens that, beyond two partial points of view which are in contrast, there exists a wider view of things which embraces both and integrates them.” In this statement is clearly the sense of understanding of the philosophy of science in which you are so lacking.

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GEO Cardinal Poupard is an Evolutionist and a Copernican, as are all the 80 members of the *Pontifical Academy of Science*. Their study is completely biased and suited to their own cause, which is to eliminate every form of scientific alternative that exists, except their own. I suggest you read my analysis of the 1992 message. In it you will find all kinds of misstatements and subterfuge perpetuated by the *PAS*.

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AC But the Vatican went further: The following is a quote from Pope John Paul II “Galileo sensed in his scientific research the presence of the Creator who, stirring in the depths of his spirit, stimulated him, anticipating and assisting his intuitions.” Now clearly the Pope did not intend us to believe that Galileo was stimulated by God into coming to an incorrect conclusion. Or that God assisted Galileo’s intuitions in an erroneous manner. No, the only meaning that can be drawn from this statement is a supportive one for the scientific view Galileo professed. This can hardly be construed as a complete lack of reference as you would have us believe.

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GEO The Pope’s message was written by the *PAS* for the *PAS*. It was a private meeting with

them, and holds absolutely no authority in the Church. It is merely the opinions of the men gathered at the meeting.

AC No theory in Physics exists in isolation, in fact the more difficult it is to fit a new theory into the main body of theory the less likely is its ultimate reliability and final acceptance by science in general. One of your errors is to suggest that the controversy you have stirred exists in isolation. One need only to look at the proof that $1+1=2$ in *Principia Mathematica* by Bertrand Russell and Alfred North Whitehead to see what I mean. Within the religious apologetics arena, this demanding of isolated proofs would be equivalent to plucking a verse out of context and interpreting it alone; and we all know the errors that arise from that method.

GEO Well, if it's that hard, then Occam's razor goes out the window. On the other hand, the Lense-Thirring effect, and Einstein's support of it, allows me to say, at the least, that neither Heliocentrism nor Geocentrism can be proven, so why doesn't everyone in the Heliocentric camp sit back and take a nice breather and let us who wish to interpret Scripture plainly do so without being tarred and feathered by dogmatic opponents?

AC The real issue is the unity of scientific theory, if you reject heliocentrism, you must reject some element of many other underlying theories including relativity. From there, you can no longer account for some other phenomena, which rely on THAT theory to predict and explain the mechanism of the phenomena. The issue of underlying mechanism is another entire subject which modern science has made integral to its philosophy that any reliance on scripture for descriptions of the physical world must inherently lack. But I will keep this reply from getting any longer than it already is.

GEO Yes, I do reject Relativity, because I believe it is pseudo-science. My underlying mechanism is a stationary earth in an aether train, which aether was shown by Sagnac (1913), Michelson-Gale (1925); Miller (1933); and Ives (1943), and which Einstein sought desperately to suppress. Relativity, on the other hand, turns the world upside down. You may choose to have light as your only constant. I choose to have the earth as my constant, because that's what Scripture says. In either case, each one of us needs a constant, and that is the underlying mechanism.

AC An example can be interjected here that may help you to understand the issue and is related to one of your other pet peeves – evolution. Now since my background is a Masters in Physics, I do not have the expertise in biology to provide an adequate defense of human evolution and I will limit my discussion to cosmological evolution. The specific point I want to make is that by denying one prediction of cosmology – that of the age of the universe being approximately 15 billion years as opposed to 4,000 years (which can be derived from a literal interpretation of scripture) – one is required to reject another prediction from science – that of the ratio of hydrogen to helium in the universe. This ratio is a well known prediction made by cosmological physics and confirmed by observation; a prediction that is not even possible from

scripture. Now that you deny the ratio of hydrogen to helium prediction you must deny the methods (theories) within nuclear physics which were utilized by the cosmologists in making that prediction, those theories lead to our understanding of why the sun continues to burn, how MRIs work etc. and the dominos continue to fall. To accept the 4,000 year age of all creation is to abandon a large chunk of man's accumulated knowledge just to sustain some men's literal interpretation of scripture. We lose all the predictive power science's world view holds and have to abandon many other "facts" of the world as well if we are to have a consistent world view.

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GEO You are defeated by your own words: "This ratio is a well known prediction..." How can a "prediction" be a fact? How can a "prediction" dictate proof? All you are doing is confirming our suspicions that science takes such monumental leaps on the flimsiest and most unverifiable evidence. Earlier you excused yourself from having to prove heliocentrism due to the inordinate amount of complicated math you needed to show; and earlier you pleaded that science is not in the business any longer of proving its arguments; yet here you commandeer a relationship between hydrogen and helium – one, I might add, that you have hardly begun to prove exists either now or 15 billion years in the past – and try to pass that off as "predictive" proof for a long-aged universe!! You call that science?! You call that consistency to your own claims?! Here you talk of "man's accumulated knowledge" yet you were the one just a few paragraphs ago who told us that man couldn't gather enough information to make absolute conclusions. This is precisely the kind of pseudo-science we reject. It is precisely because of these unsubstantiated claims that I call upon divine revelation to give me the foundation with which I need to work. You have none, because you start from yourself. Any system that starts from a finite foundation is doomed to failure.

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AC Similarly, we choose to believe the earth goes around the sun because not to call so many other theories into question that we must be wrong in too many places to be reasonable, while to accept the idea that the sun goes around the earth gains us nothing.

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GEO "Gains us nothing"? Since when has cosmology become a value judgment for you? The only thing from which we can "gain" is the truth. And again, you are defeated by your own words: "...calls so many other theories into question." Since when are "theories" the basis for denying one system over the other? If you had a dollar for every "theory" of science that has come and gone in the last 500 years, you would be a rich man. Yours is the typical bravado thrown about by the science community today. They gain a little information through a telescope and all of a sudden they are making grand predictions about everything. The funny thing is, the more they postulate, the more they trap themselves. Take for instance the expanding universe idea. They realize that 99% of the matter they need for this type of universe doesn't exist in the universe. So what do they do? They make it up, as they usually do. Then they put a name on it (Dark Matter) and feed it to the adoring public. They've never seen Dark Matter and have never detected its presence, but by golly, they just know the universe is expanding, so the Dark Matter just has to be there!! As for the universe's expansion, we used to have a constant called the "Hubble constant." But do you know how many times the Hubble constant has been changed due to "new" information they have received. Oh, about half a dozen times. Or take Einstein's so-

called proof for Relativity in the perihelion of Mercury. Within the margin of error, Einstein predicted the perihelion and everyone raved about his theory. But then Einstein put his theory to work on four other planets. The result? He got them all wrong. One planet was so off that he had the perihelion going backwards! Anomalies and contradictions similar to these are all over the science world. I know. I've been reading about them for the last 30 years. The Bible doesn't defeat you. Your own science defeats you.

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AC Let's look at the reasons for, or the advantages, to choosing each of the two world views. Geocentrism has the following advantages: it is the literal interpretation of the scriptures as recommended indirectly by Pope Leo XIII, it is the interpretation made by the Church and vigorously defended during the *Inquisition*, and it explains the observation most of us are familiar with of the sun rising in the east and setting in the west. These advantages are not all they seem. First the literal interpretation is only to be recommended when there is no good reason not to use it, and science, as I have shown above, gives us a very good reason not to use it.

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GEO For someone who at the beginning of his remarks was trying to make a case that science was not in the "proof" game any longer, you sure changed your tune. If the 15 billion year "prediction" of the relationship between hydrogen and helium is all you have, then you really haven't proven anything. In fact, you've gone backwards, since you have shown just how inconsistent and contradictory your whole approach is.

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AC Secondly there is more than one literal interpretation possible, since the phrase "goes around" is unclear as to what the reference point of the observer is. Geocentric supporters assume the reference point is that of some point outside the earth, but that is purely an assumption. If alternatively, one assumes the observer is synchronized with the rotation of the earth (for example living on the earth) then to them, the sun goes around them due to the rotation of the earth on its axis, in spite of any other outside motion of the two bodies. This leaves open the door for heliocentrism.

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GEO Not that easy. First, we're not just talking about the passages which say the sun rises, but the passages which say the sun stopped moving and that the earth does not move. There are about a dozen of them in Scripture. Second, if you claim these are phenomenological, then you must have a basis for it. You just can't say: "Hey, I want to interpret these passages phenomenologically." You would first need to show us at least one other instance in Scripture where a physical event is described from the phenomenological perspective. I've searched and haven't found any. If there are none, then the weight of the argument is not on your side. Third, as I said above, all the Fathers of the Church, in consensus, interpreted those passages literally; even in the face of the Greeks who were pushing for Heliocentrism (Aristarchus of Samos) and influencing many of the Christians.

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AC Reliance on the Church for the proper interpretation is only sufficient in determining

ultimate truth when the Church speaks dogmatically either through *ex cathedra* or through a Council of Bishops who jointly make a statement with the Supreme Pontiff. In either case the issue under consideration must be one of faith or morals. It is because of this last phrase that no references from the *Inquisition* satisfy these criteria. You may argue that the bishops felt it was such an issue they were dealing with and so because they are protected from errors in this type of issue, then it was indeed an issue of faith and morals and so we are bound to their interpretation. But this is just a circular argument and insufficient as proof. If the Council of Bishops is allowed to call any issue a matter of faith and morals (or worse yet we are to automatically assume that every pronouncement they make is on faith and morals) then the phrase “in matters of faith and morals” is redundant and therefore meaningless. It is for this very reason – that the Bishops were not speaking infallibly – that the Church has lately issued apologies for its treatment of the issue and of Galileo in particular.

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GEO Well, then, you’ve just become the judge of whether Pope Urban VIII had the right to consider Copernicanism a matter of faith due to its undermining of the literal truth of Scripture. So you not only call into question Urban’s decision, but you also call into question his right to decide. From what I know of ecclesiastical protocol, that is a decision left only to the Pope. That’s why we have a pope. As for the “apology,” until John Paul, or any future pope, comes out with an official and formal retraction of the condemnation of Urban, then the “apology” holds no weight. In fact, the “apology” undercuts your position, for if you claim that it holds some weight in this discussion, and yet we all know that it was merely a private address to the *PAS*, then by what ecclesiastical leap do you claim that an “*in forma communi*” (a formal statement) made by Pope Urban VIII – to the Church at large in order to protect them from what he considered harmful – has no authority??

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AC Now the reasons and/or advantages for using the heliocentric system. It predicts the behavior of the rising and setting of the sun.

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GEO What’s that supposed to mean? It fits consistently within the sum total of all scientific theories. We don’t base things on “theories.” Besides, in your theory you can’t explain what gravity IS, which, ironically, is the most important element in every one of your “theories.” It is not based strictly on correlation of data but is supported by an underlying mechanism which when understood can yield other predictions.

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AC Like what? The relationship of hydrogen to helium 15 billion years ago? And it satisfies Occam’s Razor, which when stated in the simplest sense says that the theory requiring the least amount of work on the part of the scientist is the accepted one.

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GEO In your universe the earth is rotating at 1,054 mph at its equator. It is traveling around the sun at 66,000 mph. The sun itself is whizzing around the Milky Way at 500,000 mph. Our cluster of galaxies are receding from other galaxies near, at, or beyond the speed of light. (Yet we’re told that if one approaches the speed of light his mass will begin to increase to infinity).

Now, that's complicated! But in my universe we have a stationary earth with the sun, planets and stars in an aether bed revolving once every 24 hours. Pretty simple, I'd say. By the way, that causes just enough centrifugal force so that the stars don't collapse into the center, and thus we don't have to create "Dark Matter" to the tune of 99% of the total mass of the universe to make our system work.

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AC Anyone familiar with the theories of special and general relativity will know that you can pick any point in the universe as your center and the formulas will allow you to calculate any phenomena of interest with regard to motion. From the point of view of science both theories provide the same predictive power and so both are equally correct (as long as you come to the aid of the scriptural description with a mechanism from within the very science it rejects). However the math associated with calculating orbits for the other planets is much more difficult in a geocentric system, with no subsequent gain in accuracy or any other advantage. Choosing between them comes down to Occam's Razor.

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GEO False. The Geocentric system has explained every motion we see in the sky, and we don't have to have all the heavenly bodies whizzing around at tremendous speeds in order to do so.

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AC So we have Occam's razor *versus* the adherence to a literal interpretation of the Scriptures. If this is where it ended we might be tempted to side in this one instance with a literal interpretation of scripture no matter how obtuse the recommendation is. But there are, if I can paraphrase Cardinal Poupard, other issues and will always be other issues where science and religion differ on descriptions of the physical world. As we saw above in some instances like the age of the universe, clear links to other theories can be shown that provide additional reasons for choosing the scientific view over a literal religious interpretation, beyond simple reliance on Occam's razor. So saving this one issue, that of geocentrism, when we know the war is going the other way is not logical or consistent. I rest my case.

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GEO You are the victim of the same disease mankind has had since Descartes – thinking that you can gather enough facts to make conclusions about primordial times and events of which you haven't the slightest inkling. You, like so many others, have chosen to regard Scripture as just a secondary, or even tertiary, source of information. To the extent that you do that, is the extent to which you will be blinded in regard to the cosmos. The bottom line is: you weren't there when it all began, and therefore you have no way of knowing what happened; and you can't take yourself outside of the universe to see just how it is moving. You can speculate all you want with "theories" and more "theories," but in the end you're no closer to truth than you were yesterday. God has built the universe in such a way that you can never find out how it really works. Scripture tells us so. He did this specifically so that men would realize that looking deeper and deeper into the atom, or deeper and deeper into space, is just going to present more and more anomalies. You said it best yourself: "Science no longer makes such claims for its world view..." I suggest you stop looking into the atom and deep space and start looking at God

and His revelation in Scripture. As for Occam's razor, Scripture is simple enough that a child can understand what it means when it says the sun rises or is stopped in its path. All you need do is humble yourself like a child, and you'll be able to see it.

Some problems for earth-movers

GEO A previous a-centrist [heliocentrist-Copernican] dismissed about 75% of our last go at it by claiming that the material I brought to the table was taking us "out of focus." Allow me to re-state problems he refers to as "out of focus".

Problem: Why clouds don't obey the Coriolis effect, but hurricanes do.

=====

AC Well, they do (what we see as hurricanes in satellite photos are cloud formations), except that for it to be noticeable by us, the effect has to be large enough. Hurricanes are fast-moving and massive, and one can see large-scale effects on them; while an individual cloud is small and is more affected by local winds than the Coriolis effect (and the same sort of thing is true with respect to the water draining down your sink).

=====

GEO Cloud formations can cover the whole sky, from east to west or north to south, and often cover more surface area than hurricane formations. But we don't see any cloud formations rotating due to Coriolis.

Problem: Why projectiles can act independently of the rotation of the earth but clouds can't

=====

AC Actually, projectiles are indeed affected by the Coriolis effect.

Here's the equation for the Coriolis force

from <http://www.physics.ohio-state.edu/~dvandom/Edu/newcor.html> :

$F(\text{Coriolis}) = -2m(w \times v_r)$ where : m =an object's mass, w =the angular velocity of the rotating frame of reference, v_r =the object's velocity in a rotating frame.

So it would seem that a fast-moving projectile could have a great Coriolis force applied to it, while a slow-moving cloud would not.

=====

GEO Is that why they claim the Foucault Pendulum, which is much smaller and slower than most cloud formations, is so influenced by the Coriolis effect that it rotates in 24 hours, without deviation, at the poles?

Problem: Why a plane traveling from NY to LA doesn't take into account the rotation of the earth at different latitudes when it plots its course.

=====

AC Sure it does. From <http://www.physics.ohio-state.edu/~dvandom/Edu/newcor.html>:

"Another example of a quickly moving object in the sky which covers hundreds of miles is an

airplane. All pilots need to have familiarity with the effects of the Coriolis force, since airplanes can reach speeds much higher than even the fastest hurricane winds. Over the course of a several hour trip, an airplane could be deflected by a significant amount if the pilot didn't compensate for the Coriolis force."

=====

GEO First of all, Coriolis is not the same as different rotation speeds at different latitudes. Second, the Coriolis they are talking about is against the wind, not with respect to location on the ground.

Problem: how a bomb, dropped from 30,000 feet, can move laterally with the earth at 1000 mph to hit its target.

=====

AC Before the bomb is dropped, it is moving laterally along with the plane. After it is dropped, it retains its lateral motion (minus air friction). To give you an example, imagine you were in the passenger seat of a car speeding down the highway. If you were to open the door of the car while it was in motion and walk out, would you retain the forward motion you had while inside the car (and thus end up rolling to a stop on the highway as a result); or would you be at rest with respect to the earth when you left the car, and be able to step onto the highway as easily as if the car were at rest?

=====

GEO No, you don't understand the problem. The bomb was dropped from 30,000 feet. After falling 10,000 feet, gravity takes over completely and lateral inertia is spent, and the bomb begins to fall straight down. But if the earth is still moving at 1,000 mph, how is the bomb going to keep up with the lateral speed if it is falling straight down after 10,000 feet?

Problem: how the moon's gravity can attract the water on the earth to cause tides, but ignore the land mass (which one a-centrist claimed in contradiction to three sources I gave him).

=====

AC The oceans are liquid, and so can change their shape and be visibly pulled upwards by the moon, while the earth is relatively stable in shape and so is not deformed. The moon attracts both equally, but one is more easily dragged upwards. In the same way, if you were to told out before you a wooden bat and a foam bat, the foam would droop downwards (due to gravity) more than the wood, because wood is rigid, but foam isn't.

=====

GEO You say the moon can pull billions of tons of water up 12 feet a day, but it can't pull up any loose debris on the land mass? It can pull ocean water, but it can't pull the clouds or the air? Sounds like your gravity also has a mind of its own. Also, I suggest you read the three scientific sources I gave previously which contradict your proposal, since they say the land mass does rise.

Problem: How Einstein could admit that ANY motions we see on earth can be attributed to a rotating star system, and how are we not to understand a previous a-centrist is conceding that all the Coriolis and centrifugal forces we see can be attributed to either a rotating earth or a rotating

star system.

=====

AC I believe what you're talking about is the theoretical idea of the earth being encapsulated inside a rotating spherical shell. There is no such spherical shell. And if there were, the sphere would have to have sufficient mass to produce such effects. Show me the calculations you've got showing the needed mass and rotation of the spherical shell in question. I'd be interested in seeing them.

=====

GEO You obviously don't know what I'm talking about if you have to guess. The phenomenon I'm talking about is the Lense-Thirring effect. If you want to see the math, then I suggest you look up "The Effect of Rotating Distant Masses in Einstein's Theory of Gravitation" by Hans Thirring in *Physicalische Zeitschrift* 19:33-39, 1918. He has 8 pages of Tensor Calculus in that one. You can also check out "The Influence of the Self-Rotation of Central Bodies on the Movements of the Planets and the Moon According to Einstein's Theory of Gravitation" by J. Lense and H. Thirring in *Physicalische Zeitschrift* 19:156-163, 1918. They have 10 pages of Tensor Calculus in that paper.

=====

AC In any case, if I'm not mistaken this effect requires General Relativity to work, and this is something I don't think you believe in.

=====

GEO That's the first thing you've said that is correct. Continuing with those "out of focus" issues . . .

Problem: How we can be moving at the speed of light in a galaxy that is supposedly receding from other galaxies.

=====

AC The speed of light limit only applies in flat space-time (or in curved space-time over short distances). The universe (on the scale you're talking about) is curved, and so only General Relativity applies, not Special Relativity.

=====

GEO How convenient for you to be able to switch paradigms when it suits your purpose. Regardless, the point still remains that whether in GR or SR the galaxies are said to be moving apart at, near, or beyond the speed of light. But according to Einstein's equivalence principle, that means we are also moving at the speed of light.

Problem: How he can prove that the Fixed-earth math that they use to send up rockets and satellites does not come from a fixed-earth.

=====

AC How can you prove that a train is moving at 100km/h when you can easily walk across it as if it were standing still?

Several of these results seemed to indicate a new force, although all of the detections were quite weak. The force was thought to have a range of tens to thousands of meters. The amount of “charge” carried by different objects was thought to vary in some unknown way with the composition of the object – if it didn’t, then the torsion-balance and floating-ball experiments wouldn’t have seen anything.

Over the course of a few years, as experimental techniques were refined, all of the detections went away, though. As far as we can tell at the moment, there is no fifth force.

<http://groups.google.com/groups?hl=en&lr=&selm=DL09v7.6w0%40inssun.ins.u-tokyo.ac.jp&rnum=3>

At this point a lot of people got very excited and started doing experiments which would either detect the new force or show that it was definitely not there, and these continued all through the 1980’s. (Other theoreticians had similar ideas for new forces as well.) Initially there were a number of experiments that gave positive results but the story began to get complicated when the experiments that showed a result didn’t all agree on the strength or direction or range of the fifth force. At one point people were talking in terms of fifth and sixth forces. Finally biases were discovered in a number of the key experiments that would explain the anomalous results. For example, one type of experiment used a very tall tower (such as a TV station tower). The gravity was measured at many places on the ground around the tower and used to predict the gravity up the tower, assuming an inverse square law. It was eventually pointed out that the people who had surveyed the ground around the towers had the understandable but unfortunate habit of avoiding low places such as marshes and rivers, and that this had biased the results. Recent tower experiments with more careful land surveys have given null results.

=====

GEO If you know anything about the history of Physics, you find that they are always inventing new forces. Every time they reach a point where their conventional understandings can’t explain the nature of things, they invent a new force to compensate for it. The whole thing is built on a house of cards.

Problem: Explain how the sun (and stars) can have no effect on satellites, yet the sun holds Pluto in orbit which is 3 billion miles away

=====

AC The sun does have an effect on satellites. So do the stars, although this is insignificant due to their distance. And so do you and I, although this is insignificant due to our small mass.

The force of gravity between two objects is $F = G \cdot m_1 \cdot m_2 / (r \cdot r)$ where $G = 6.67259 \times 10^{-11} \text{ m}^3 / (\text{s}^2 \text{ kg})$, m_1 and m_2 are the masses of the two objects in consideration, and r is the distance between the centers of gravity of the two objects.

from <http://nssdc.gsfc.nasa.gov/planetary/factsheet/index.html>

and http://www.vendian.org/envelope/dir1/earth_jupiter_sun.html

The mass of the Earth = $5.97 \cdot 10^{24}$ kg; The mass of the Moon = $0.073 \cdot 10^{24}$ kg; The mass of the Sun (or star) = $2.0 \cdot 10^{30}$ kg; The mass of a human = 50 kg;

Earth-moon distance = $3.84 \cdot 10^8$ m; Earth-Sun distance = $1.496 \cdot 10^{11}$ m; from <http://hyperphysics.phy-astr.gsu.edu/hbase/starlog/streclos.html>: Earth-star (Alpha Centauri)

distance $> 3.8 * 10^{16}$ m; Earth-satellite distance = approx. $3 * 10^7$ m; human-satellite distance = $2 * 10^7$ m.

Let us take the case of a satellite going around the earth. We'll assume its mass is 1 kg in order to simplify the calculations, though it wouldn't affect our conclusions.

Here are the gravitational forces on the satellite caused by various celestial objects: Earth: $F=Gm_1m_2/(r*r) = 0.44 \text{ kg*m}/(s*s)$ Moon: $F=Gm_1m_2/(r*r) = 0.000033 \text{ kg*m}/(s*s)$; Sun: $F=Gm_1m_2/(r*r) = 0.006 \text{ kg*m}/(s*s)$; *Alpha Centauri*: $F=Gm_1m_2/(r*r) = 9.2 * 10^{-14} \text{ kg*m}/(s*s) = 0.000000000000092 \text{ kg*m}/(s*s)$; human: $F=Gm_1m_2/(r*r) = 8.3 * 10^{-24} \text{ kg*m}/(s*s) = 0.0000000000000000000000083 \text{ kg*m}/(s*s)$.

The earth is a massive object that is very close to artificial satellites, so it is the main factor in their orbits. The Sun is the next most significant object and its effect is only 1% that of the Earth. Any star, even the closest, is insignificant in its effect.

Pluto's distance to the Sun is 39.5 times that of the Earth, so the Sun's gravitational effect on Pluto will be 1/1560 times weaker than it would be if it were as close to the Sun as a satellite is, but the Sun nonetheless has 42,000,000 times the gravitational effect on Pluto than even the closest star has.

GEO We're not talking about one star compared to the sun. There are billions of stars acting on us. Their total gravitational output is much larger than the sun. In fact, if you read the Lense-Thirring paper, you'll see that all the mass of stars in rotation are what cause all the gravitational and centrifugal effects we feel on earth.

Problem: Explain why, if the planets' orbits are nearly circular, that Copernicus' model of circular orbits did not work and had to be replaced by the elliptical orbits of Kepler.

AC Because they are nearly circular. In other words, they're not circular. A circle is just an ellipse with no eccentricity. Pluto's orbit, for instance, has a pretty noticeable eccentricity, as do the orbits of the comets.

GEO Yes, but "nearly" circular orbits don't work in the Copernican model either. I'm not really sure what the point of your question is, actually...

Problem: Explain why the *Catholic Encyclopedia* says that Urban actually "condemned" Copernicanism (*albeit not ex cathedra*).

AC The *Catholic Encyclopedia* says (<http://www.newadvent.org/cathen/06342b.htm>): "It may be added that Riccioli and other contemporaries of Galileo were permitted, after 1616, to declare that no anti-Copernican definition had issued from the supreme pontiff."

GEO That's right, no "definition." A "definition" is an infallible dogma issued *ex cathedra*. No one ever claimed that Pope Urban issued the decree *ex cathedra*, but he didn't have to, since

what the pope teaches non-*ex cathedra* is also authoritative for us. If not, then everything John Paul has written and spoke for 22 years can be dismissed, except for his 1994 pronouncement on *Ordinatio Sacerdotalis*.

Problem: Explain how he can accept any pope's non *ex cathedra* statements as true and binding if he doesn't accept Urban's statement against Copernicanism as binding

=====

AC I'm not aware of any such statement from Pope Urban.

=====

GEO Then obviously you're not aware.

Next issue: explain how the Holy Spirit could lead two popes to condemn Copernicanism in official statements and why the Holy Spirit hasn't led any pope to officially and formally annul that decision.

=====

AC I'm not aware of any such official condemnations.

=====

GEO Ditto from above.

The rest of the Einstein affair

AC I have the best that modern science can give. It is on the basis of some of the evidence that I am about to cite that Pope Pius VII, in 1820, removed the prohibition against teaching the Copernican theory. Here are the arguments:

=====

GEO There was never really a prohibition of "teaching" Copernicanism as much as there was a ban on teaching it as a scientific fact. Copernicus' books held Heliocentrism to be scientific fact, and Galileo reinforced that position when presenting Copernicanism to the Catholic hierarchy. Pope Urban VIII made the decision in a "*in forma communi*" (a formal statement) to the universal Church of that day censoring Copernicus' books. He said he would not relax the censor against Copernicus' books "until corrected." A list of the needed "corrections" were given. Once done, the reading of his book was allowed. Thus, in 1758, Benedict XIV had removed Copernicus' books from the *Index*. But that did not mean the Church was endorsing Copernicanism. It only meant that a Catholic could read about Copernicus' theory without having to regard it as scientific fact. Even after this, however, Geocentrism dominated the scientific world. All the Jesuit astronomers were Geocentrists and the fought vigorously against the Copernican theory. The Jesuit Athanasius Kircher (1601-1680) was taken over by Jesuit Jean Dominique Cassini (1625-1712). Cassini founded a whole dynasty of French Jesuit astronomers lasting four generations to his great-grandson Dominique Cassini (1748-1845).

=====

AC 1) That the earth rotates on its axis: If the earth rotates on its axis, it is clear that it also carries the atmosphere with it in its rotation. From this fact, we can infer that if an object is

dropped at some height from the surface of the earth, it will not land at a point directly below the point from which it was dropped but somewhat east of that point. The reason for this is that an object raised from the earth's surface is rotating in a larger circle than one on the earth's surface. Hence, the horizontal component of its velocity will be greater than is that of the point directly below it on the earth's surface. Since the object maintains its horizontal component as it falls, it will race slightly ahead of the whirling earth and land somewhat east of where one might expect it to land from the point of view of the geocentric theory. Several experiments have been performed verifying this thesis. Giovanni Battista Guglielmini, in the late 18th century, performed a number of tests from the Torre dei Asinelli in Bologna in which he measured an eastern deviation of 19 mm. of objects dropped from a height of 78.3 meters. In order to minimize atmospheric disturbances, he also performed some tests inside the Torre where he measured a deviation of 4 mm in objects dropped from a height of 29 m. These test were repeated and confirmed by Johann Friedrich Benzenburg in 1802, Ferdinand Reich in 1831, and finally Edwin Herbert Hall in 1902 (the latter was performed at Harvard from a height of 23 meters and measured a deviation of 1.50 mm plus or minus .05 mm against a predicted value of 1.8 mm).

GEO I am well aware of these experiments and their results. Here is the problem, however. Even granting that the results are correct, they do not prove a rotating earth, since, as modern physics has discovered, the same precise results can be produced from a rotating star system around a stationary earth. There is no difference between the two systems. In effect, the rotating stars will produce a different gravitational and centrifugal force on an object that is above the earth as opposed to an object on the surface of the earth.

Let me give you the history of this issue:

Einstein taught that there is a force inside a moving sphere of matter. He wrote to Ernst Mach on June 25, 1913:

If one accelerates a heavy shell of matter S, then a mass enclosed by the shell experiences an accelerative force. If one rotates the shell relative to the fixed stars about an axis going through its center, a Coriolis force arises in the interior of the shell, that is, the plane of a Foucault pendulum is dragged around.

This coincides with Geocentric theory, since it is our belief that the daily rotation of the stars around the earth causes gravity, as well as the Coriolis forces and the Foucault pendulum effect that Heliocentrists are so fond of attributing only to a rotating earth. Einstein is confirming the Lense-Thirring effect. In fact, Einstein cites Hans Thirring in his 1914 paper. He writes:

Let the earth be a coordinate system rotating uniformly relative to the universe. Then centrifugal forces would be in effect for masses at rest in the universe's coordinate system, while no such forces would be present for object at rest with respect to the earth.

Before I quote the rest of the section, let me pause here to say that in the Geocentric framework, the GSS is precisely the kind of object about which Einstein is speaking – at rest with respect to the earth, but viewed as having a centrifugal force acting on it with respect to the universe.

Einstein continues:

Already Newton viewed this as proof that the rotation of the earth had to be considered as “absolute,” and that the earth could not then be treated as the “resting frame” of the universe. Yet, as E. Mach has shown, this argument is not sound. One need not view the existence of such centrifugal forces as originating from

the motion of the earth; one could just as well account for them as resulting from the average rotational effect of distant, detectable masses as evidenced in the vicinity of the earth, where the earth is treated as being at rest.

There you have it. The very person who formulated Relativity to save the world from having to abandon Copernicanism, admits that Newton was wrong in saying that the earth could not be used as a resting frame for the rest of the universe. In effect, Einstein admits, via Mach, that the centrifugal force on an object in the earth's rest frame is inadmissible as evidence of the rotation of the earth, for in the earth's frame, that force arises from "the average rotational effect of distant, detectable masses." Thus, Einstein is saying the same thing I'm telling you, only I'm applying it to the GSS, as well as showing that you can't prove a rotating earth using the principles of physics admitted to by Einstein himself.

There's more. Einstein then admits that "the required equivalence appears to be guaranteed by the general co-variance of the field equations"

Here is another startling admission, one that Einstein cannot avoid due to the fact that his own postulate of "co-variance" forces him to say that Mach's results are "GUARANTEED" by Einstein's own equivalence principle – the principle I cited to you earlier that says one cannot say whether his car is traveling 1056 mph westward, or that the earth is rotating 1056 mph eastward. Thus, when I say that the "mathematics is the same" for you and me, this is what I am referring to, Einstein's own principle of co-variance. In other words, Einstein's own equations are such that they explain the origin of the necessary force required to keep the GSS in its stationary position above the earth!

Hans Thirring, after ten pages of the same tensor calculus that Einstein used for Relativity, shows that

By means of a concrete example it has been shown that in an Einsteinian gravitational field, caused by distant rotating masses, forces appear which are analogous to the centrifugal and Coriolis forces.

In their book, "Gravitation," authors Misner, Wheeler and Thorne show the magnitude of the force from the stars. They say on pages 547-548 that there is a rotational drag caused by the stars, and that the angular velocity of that rotation must be identical to the angular velocity of the Foucault pendulum. Thorne is Cal Tech's black hole and general relativity expert; while Wheeler and Misner taught at Princeton, Cal Tech and Oxford. All three of them approvingly cite the work of Hans Thirring, famous for the Lense-Thirring effect about which I have been telling you from the start of these dialogues.

There's more. In their book *General Relativity and Gravitation* (vol. 21, no. 2, pages 109-110, in 1989), Gron and Erickson, in the article, "Translational Inertial Dragging," write: "The rotational inertial dragging effect, which was discovered by Lense and Thirring, was later investigated by Cohen and Brill and by Orwig. It was found that in the limit of a spherical shell with a radius equal to its Schwarzschild radius, the interior inertial frames are dragged around rigidly with the same angular velocity as that of the shell. In this case of 'perfect dragging,' the motion of the inertial frames is completely determined by the shell."

So here it is again. The rotating shell determines the centrifugal and Coriolis effects on an object within the shell. This is precisely what Geocentricity is saying – the rotation of the stars in their "shell" causes the forces you see on earth. This is not I saying it. It comes from the very scientists who are stuck with admitting it due to their co-variance equations and the hard facts of

the physics of rotating shells. Gron and Eriksen also say:

...with reference to Newtonian mechanics we talk of inertial force fields in accelerated reference frames. However, according to the general principle of relativity, we may consider the laboratory as at rest. We then talk of gravitational dragging fields. The concept of 'inertial forces,' which may be regarded as a sort of trick in Newtonian mechanics, is thereby made superfluous.

Notice that Gron and Eriksen admit that the Newtonian centrifugal force due to inertia is a "sort of trick," that is, it is a fictitious force. This coincides with the Geocentric criticism of Heliocentrism I have highlighted earlier.

Gron and Eriksen say much the same on page 113, where they cite C. Moller from his "standard textbook on general relativity," which states:

Einstein advocated a new interpretation of the fictitious forces in accelerated systems of reference. The "fictitious" forces were treated as real forces on the same footing as any other force of nature. The reason for the occurrence in accelerated systems of reference of such peculiar forces should, according to this new idea, be sought in the circumstance that the distant masses of the fixed stars are accelerated relative to these systems of reference. The "fictitious forces" are thus treated as a kind of gravitational force, the acceleration of the distant masses causing a "field of gravitation" in the system of reference considered. Only when we work in special systems of reference, viz., systems of inertia, it is not necessary to include the distant masses in our considerations, and this is the only point which distinguishes the systems of inertia from other systems of reference. It can, however, be assumed that all systems of reference are equivalent with respect to the formulation of the fundamental laws of physics. This is the so-called general principle of relativity.

In effect, the authors are telling us that, contrary to popular belief about Relativity, it did not save the world from having to abandon Copernicanism; rather, it made it impossible for Relativity to deny Geocentricity, due to Relativity's own principles of equivalence!

But also important is that Moller admits that the only reference frame in which we can exclude consideration of the distant stars is in "systems of inertia," which Gron and Eriksen more carefully define as "frames of reference in which the cosmic mass has no observed rotation or translation acceleration." Consequently, the earth does not fulfill the requirement for being a system of inertia, since the stars are observed to rotate around it. Hence, Moller shows that we cannot omit the rest of the universe in deriving the forces which act locally on the earth, which is precisely what Geocentricity says!

Gron and Eriksen then add even more devastating news. On pages 117-118 they write:

As an illustration of the role of inertial dragging for the validity of the strong principle of relativity, we consider the Moon orbiting the Earth. As seen by an observer on the Moon, both the Moon and the Earth are at rest. If the observer solves Einstein's field equations for the vacuum space-time outside the Earth, he might come up with the Schwarzschild solution and conclude that the Moon should fall toward the Earth, which it does not. So it seems impossible to consider the Moon at rest, which would imply that the strong principle of relativity is not valid.

In the next paragraph they reveal the implications of this result:

This problem has the following solution. As observed from the Moon the cosmic mass rotates. The rotating cosmic mass has to be included when the Moon observer solves Einstein's field equations. Doing this he finds that the rotating cosmic mass induces the rotational non-tidal gravitational field which is interpreted as the centrifugal field in Newtonian theory. This field explains to him why the Moon does not fall toward the Earth.

There is an earth-shattering admission from them, and a devastating dismissal of all your

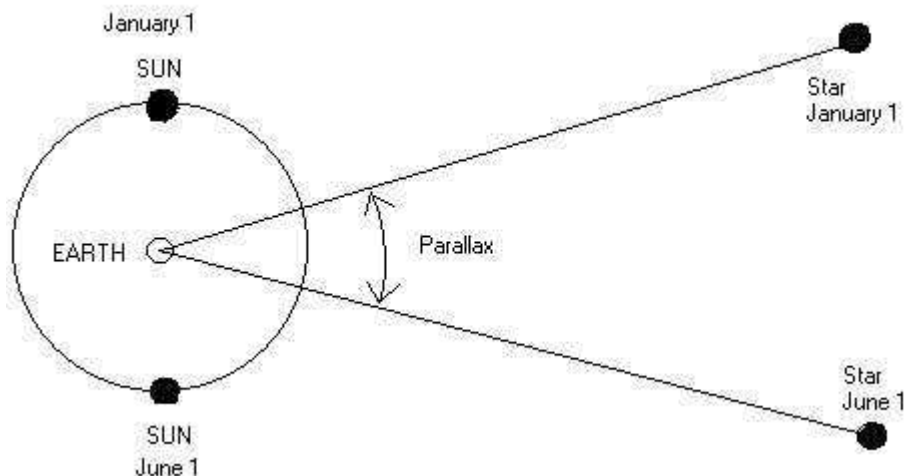
objections. Here's what they are saying: Since the Moon always shows the same face to the Earth, then from the point of view of the Moon, the Earth is continually hovering 240,000 miles above the Moon. (As such, the Earth is to the Moon what a GSS is to the Earth). The question would be: "Well, what holds the Earth up in the sky? Why doesn't it fall to the Moon?" Gron and Eriksen show us the answer, and it is in complete agreement with Einstein, Lense-Thirring, Moller, Misner, Wheeler and Thorne, *et al.* It is that the "rotating cosmic mass induces the rotational non-tidal gravitational field which is interpreted as the centrifugal field in Newtonian theory." The answer couldn't be more clear.

About parallax

AC That the earth revolves around the sun in its yearly orbit: The parallax of the star *Alpha* in the constellation *Lyra* was measured by Giuseppe Calandrelli in, I believe, the 18th century. These results were confirmed by Friedrich Bessel who measured the parallax of star *61 Cygni* in 1838. Parallax, of course, refers to the apparent change in an object's position relative to more distant "fixed" objects when the observer moves. If the earth remained stationary at the centre of the universe, no parallax would be observed. But parallax is observed. Hence, the earth is not stationary. So the argument goes. While I'm not certain that either of the above arguments can be called a demonstration in the Aristotelian sense (though the parallax argument seems to come close), they do, it seems to me, provide strong evidence against a geocentric view. At the same time, I remain open to be convinced otherwise.

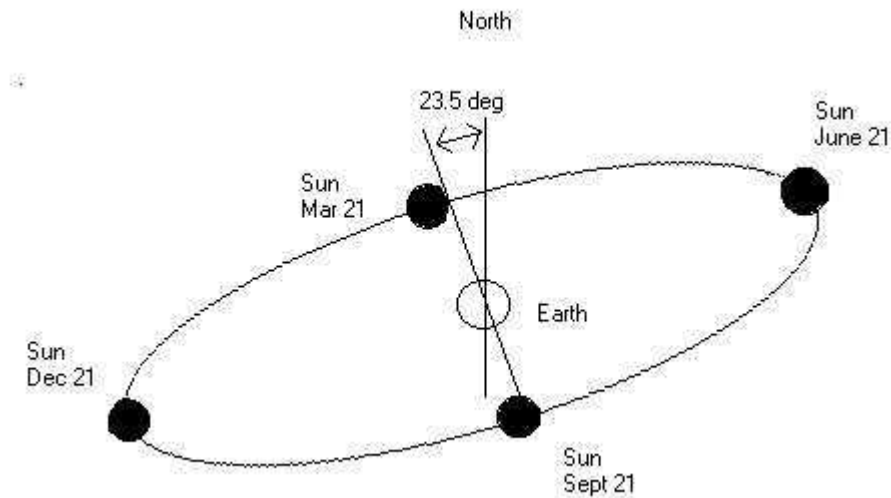
GEO Yes, the Parallax discovered by Friedrich Wilhelm Bessel (1784-1846) was supposed to be the fatal blow to Geocentrism in 1838. Because of its apparently swift motion against the background stars, Bessel selected *Cygni-61*. He measured the angular distance of *Cygni-61* from two neighboring, but more distant, stars which showed no motion. After eliminating *Cygni's* motion, Bessel concluded that it revealed a parallax amounting to a third of a second of an arc, which amounts to a distance of about 60 trillion miles. After Bessel, Henderson detected a parallax of *Alpha Centauri* in 1839, and F. G. W. Struve's detection of a parallax for *Vega* in 1840.

But this can be easily explained in the Geocentric model in the diagram below:



The diagram shows the position of the sun and star six months apart. Since in the Geocentric system the star and the sun both go around the earth, then from earth we will see the star in a different position in the sky. The parallax will be the same dimensions as that in the Heliocentric system.

The earth lies on the axis of the universe's daily rotation. In addition to the universe's daily rotation around the earth, the universe wobbles on an axis inclined 23.5 degrees to the rotation axis. It completes one turn of the wobble in a period of one year. The wobble carries the sun and stars two astronomical units (earth-sun distances) to the opposite side of the earth and results in the following



The sun and the stars move together in the same plane. The sun is always pointed in the same direction to the stars. The result of stars/sun wobble answers to the parallax shift, star light aberration, the annual Doppler shift, the precession of equinoxes, and the perihelion precession that have been observed.

I hope this helps a little better in understanding the Geocentric view.

More about satellites & oscillation

AC Let's recap: I showed the actual ground-tracks for three specific satellites: I also gave a plausible explanation for the motion of those satellites. I explained that their motion over the ground (figure-eights and zigzags) is simply the result of superimposing their actual motion (which is just your garden-variety circular orbital motion) over a rotating globe. But you say the earth isn't rotating, in which case any motion relative to the fixed earth must be actual motion caused by actual forces. In other words, if the earth isn't moving, those satellites really are zooming around in figure-eights and zigzags over the stationary earth. You need to explain how they do that. You need to show how the interaction of real forces causes *Marisat-3* to move in a giant figure-eight, how the interaction of those same forces causes *Inmarsat-3-F2* to remain stationary, and how the interaction of those same forces causes *Brasilsat-1* to move in a slow, steady eastward zigzag. In other words, you need to provide a plausible alternative explanation to mine, and so far you have not done so.

=====

GEO The gravitational force from the rotating stars – which is confirmed by the Lense-Thirring effect – and the gravitational force from the earth itself, both act upon the satellites. Therefore, your references to “distant” forces is not relevant. The forces from the rotating stars act as the inertial field against which the earth’s own gravitational field reacts. The combination of the cosmic forces and the terrestrial forces produce the Centrifugal and Coriolis forces we see on earth and in our immediate atmospheric vicinity.

Second: Let’s take a closer look at *Marisat-3* which produces a figure-eight pattern. The reason it produces this pattern is that, first of all, its position with respect to the equator is about 10 degrees in inclination. Since the equilibrium of gravitational forces lies only on the equator, then any satellite which is inclined to any degree against the equator is going to produce some type of oscillation. How would this occur in a Geocentric universe in which the satellite is not orbiting the earth but is merely hovering about the earth, moving only slightly?

Let me make an analogy. Let’s say you are in a room. On one side of the room there is a 1,000 lb electro-magnet. On the other side there is a 100 lb electro-magnet. Both magnets are turned on and operating. There is a force from each magnet. Somewhere in the room, closer to the 100 lb magnet, there is an equilibrium of counter-acting magnetic forces, such that if a metal object were placed in that equilibrium, the metal object would remain suspended within the magnetic force. (There are plenty of experiments that do this very thing). To test this out, you place a steel ball in the equilibrium position between the two magnets. You see that the ball floats in mid air, suspended by the force of both magnets.

Now, before I go any further, if you haven’t figured it out already, the 1,000 pound magnet represents the force of gravity from the stars. The 100 pound magnet the force of gravity from the earth. The steel balls represent the satellites. And one point of clarification before I proceed, the force of the stars, according to the Lense-Thirring Effect, is created by the billions of stars all acting upon the earth at the same time. These stars, as they rotate in their shell, produce large gravitational effects, according to the Lense-Thirring principle, supported by Einstein himself. This immense amount of stars makes up for the fact that the stars are far away.

You place a steel ball in the exact place where the equilibrium of the magnets exists. What do you see? The steel ball remains motionless. But on your second attempt, you place the steel ball just a little left or right of the equilibrium point. What are you going to see? You’re going to see the steel ball oscillate, left to right and right to left, indefinitely, because the unequal magnetic force on either side of it will constantly tug at it. If you placed the steel ball just a little above the equilibrium point, then you would see it oscillate up and down, indefinitely. If on a diagonal, you would see it oscillate diagonally. This is precisely what is happening with the Geo satellites. If they are not placed precisely on the equator, but are inclined to one degree or another, then they will show some type of oscillation, indefinitely. They will oscillate with respect to the equator, since the equator is the balance point where all the forces cancel each other out. That is why all the diagrams Gary shows have the center point of the oscillation precisely on the equator. The reason they are oscillating is because of the differential gravity between the stars and the earth.

Now, you’ll notice that previously mentioned satellites have either a zig-zag or figure-eight pattern. Why are they different? Since the satellite is placed in an elliptical position, not a circular position, with respect to the earth, this means that the satellite cannot maintain its position unless it moves faster or slower against the inertial frame. Thus, when the satellite is closest to the earth (the perigee) the satellite would be faster with respect to the inertial field (and

from Gary's perspective it would rotate around the earth in less than 24 hours); and when the satellite is farthest away from the earth (the apogee) the satellite would be moving slower with respect to the inertial field (or from Gary's perspective it would take more than 24 hours to rotate around the earth).

This movement is going to create various patterns. The closer the semi-major axis of the orbit lies along the apogee-perigee line, the wider the figure-eight pattern will appear, since it will be oscillating with greater force. When the semi-major axis lies along the equator, you will get neither a figure-eight nor a zig-zag, but you will get a slight north-south oscillation. You will get a zig-zag pattern when the semi-major axis is between the apogee-perigee line and the line of the equator. Or, to put it another way, when the period of the ellipses is slightly more or slightly less than 24 hours, you will get a zig-zag pattern. In effect, the figure-eights and the zig-zags are being produced from the same effect, except the diameter of some of the loops is too small to show up in the computer graph, so they turn out as zig-zags rather than the larger figure-eights.

Now, let me add one more dimension to this picture. Against what background is the figure-eight pattern or zig-zag pattern measured? In the Heliocentric model it is measured against a rotating earth. In the Geocentric model it is measured against a rotating star shell. Let me explain: If the earth is stationary, the stars are rotating around the earth every 24 hours. They will come back to precisely the same point each 24 hour period (allowing a little movement for precession, which I don't want to get into right now). We can see the satellites move against the background of the stars. On the first night we will see *Marisat* in a certain position against a particular star. But 24 hours later, we will see that *Marisat* did a figure-eight against the background of the star. (In case you're wondering, it makes no difference whether the star rotates around the earth, because every 24 hours the star will always come back to the same position in the sky).

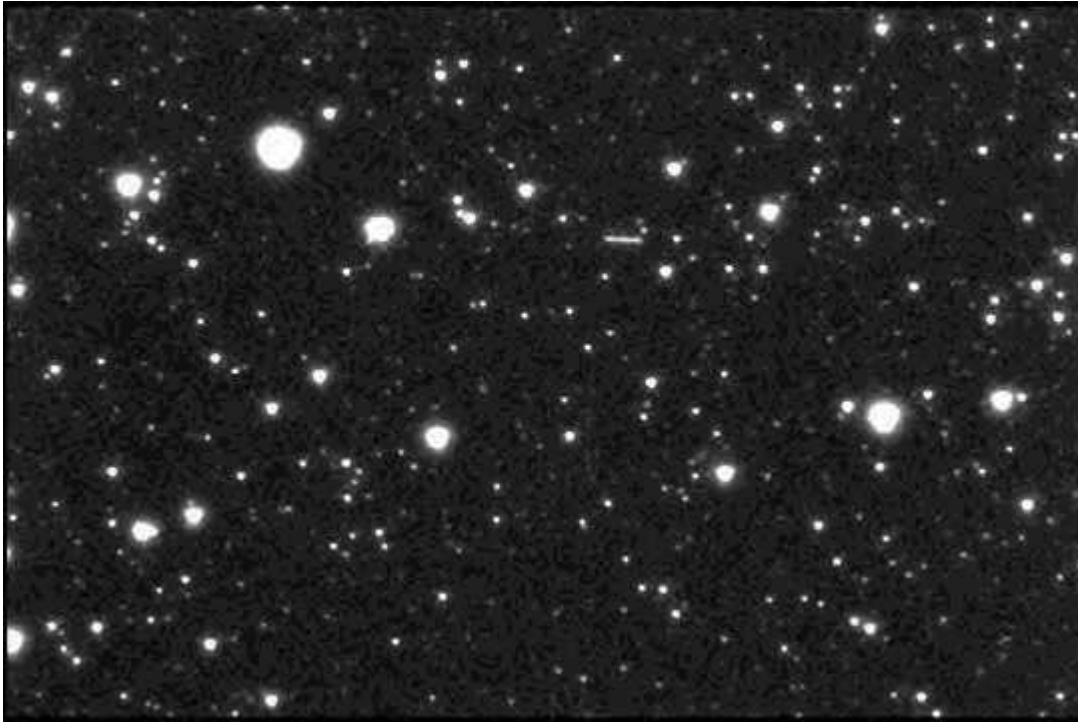
Is *Marisat* showing us real movement? Yes, it is real. *Marisat* is actually oscillating due to the fact that it is in a 10 degree inclination with respect to the earth's equator. Being in that inclination, *Marisat* will experience opposing gravitational forces from the earth-star gravity field, and thus it must oscillate back and forth between the equilibrium point, which is at the equator. But what does *Marisat* look like from the earth-movement-model? Since the earth is rotating, the movement cannot be attributed to an oscillation of the satellite itself, but to the rotation of the earth against the inclination of the satellite. That is why a proponent of that system says that the figure-eights are only there by "appearance."

But does that prove the earth rotates? Not by any means. Since, as I have shown above, the same satellite movements can be explained from the perspective of a rotating star shell as much as they can be explained from a rotating earth. Thus, using the "movements" of the Geo satellites proves nothing for anyone. All it proves is the same thing I've been saying all along – there is no proof for a rotating earth as opposed to a rotating star shell. What I have in my favor, however, is that because of the Lense-Thirring principle, which was supported by Einstein himself (a position which I laboriously detailed in one of my earlier posts), then I have a viable PHYSICAL explanation for the forces that would cause *Marisat* to oscillate in the figure-eight pattern, and therefore my assertion that no one can disprove that system still stands; and which also means that no one can prove that a rotating earth is the only explanation. Having shown that, it means that this discussion is wide open, and the pursuit of Geocentrism is as viable as Heliocentrism. Since the consensus of patristic evidence; the literal interpretation of Scripture; the papal censoring against taking Copernicanism as a certainty; and the explanations from science all

support a Geocentric universe, then this position is one that demands to be maintained unless someone can prove otherwise.

Chandra again

AC Specifically regarding the *Chandra X-ray Observatory*, you said, “Your pictorial exhibit of *Chandra’s* movement is not real. It is a computer-generated image of the trajectory *Chandra* would transcribe on the earth if the earth were rotating.” Well, then, I wonder how you explain the fact that Gary Emerson was able to use this same faulty data to aim the 25cm telescope at the E. E. Barnard Observatory and take this picture of *Chandra* in orbit:



AC (that little horizontal streak is *Chandra*). If *Chandra* wasn’t right where *NASA* said it would be, how did Mr. Emerson find it?

=====

GEO I never said that *NASA* couldn’t tell someone where to find the satellite. All I said was that the trajectory on the pictorial was a computer-generated image based on the input the computer receives regarding a rotating earth. I didn’t say the pictorial was wrong, at least not from a rotating earth framework. In fact, Gary Emerson can use that computer-based imagery and know that, from the perspective of a rotating earth framework, *Chandra* is going to be over a certain place at a certain time. However, *Chandra* does not have a big pencil that reaches to the earth and by which it marks out a trajectory. Once again, the image we see in *NASA’s* pictorial is exactly what one would expect to see from a rotating earth. But that doesn’t prove that the earth is rotating. All it proves is that if one assumes a rotating earth, the trajectory will follow the path depicted in the pictorial.

But if one assumes a stationary earth and a rotating star system, the trajectory is going to be different. In this case, *NASA* would have to program the computer to assume a stationary earth, and then feed the information about *Chandra’s* ellipses, inclination and speed into the computer.

The computer, programmed for a stationary earth, would then calculate the pictorial trajectory of *Chandra*. But in the case of a stationary earth, the earth would be showing the same face toward *Chandra* about 80% of the time (based on a 2.5 day flight-path and an apogee of 80,000 odd miles). In this case, the trajectory the computer will transcribe on the pictorial will be much simpler, that is, it will not have a long zig-zagging and looping line going all over the globe, rather, it will have a simple descending line in the shape of a horseshoe. It just so happens that the horseshoe trajectory of the stationary earth will circumscribe the zig-zagging and looping trajectory of a rotating earth AT EVERY POINT, since both systems account for *Chandra's* whereabouts at all times.

The computer could then make two three-dimensional graphs, one for the horseshoe trajectory in the stationary earth and one for the zig-zagging/loop trajectory in the rotating earth, and then, using advanced trigonometry, superimpose one pictorial over the other and we would see the same precise trajectory in each graph. However, this does not prove which one is right, since both models work.

=====

AC If anybody still doubts that the geosynchronous satellites move the way *NASA* says they do, here's a picture of a couple of them –

AC This is a long-exposure picture, meaning that the camera's shutter was left open for several seconds. That causes the stars to show up as parallel streaks because the earth rotates



while the shutter is open and the film is exposed. The dot near the center of the picture is a geostationary satellite. It's moving in synch with the earth's rotation, so it still shows up as a dot. The bright streak that's moving at an angle to the stars is a geosynchronous satellite in an inclined orbit. It's either doing part of a zigzag or a figure-eight; it's impossible to tell which from this picture. So, there you have it. I've proved that the earth rotates, because by doing so it causes certain satellites to move in otherwise inexplicable patterns. You made a half-hearted, though utterly unconvincing, attempt to account for this motion.

GEO You assume that the streaks are made by the moving earth camera against the stationary stars. (The Geocentric system says it's the stars moving against a stationary camera on earth). But merely asserting it doesn't prove anything for you, since you have no way of telling which is correct. You can't prove it by the bright diagonal line made by the Geo satellite, because, as I explained in my previous post, any satellite at an inclination with respect to the earth's equator is going to have some kind of oscillating movement. As you said, however, we can't tell from the photograph what kind of movement it has, either a figure-eight or a zig-zag, and thus we can't tell what its inclination is. Nevertheless, in the Geocentric framework, it is oscillating. In your model it is merely following an elliptical path around the earth. Both systems work, so this provides no proof for you.

By the way, I think it is worth mentioning that all these photographs are taken at night with the stars as the background. Obviously, they couldn't take the pictures during the day, since the brightness of the sun would not allow us to see either the stars or the satellites. But this also puts your search for proof at a disadvantage. Why? Because judging movement based on the stars as the background is, shall we say, begging the question, since you must first prove that the stars are stationary and the earth is rotating before you can conclude what is actually moving in the photograph. But obviously, you can't prove a point by using an unproven assumption.

About NASA's satellite tracking system

GEO It seems that, whether inadvertently or intentionally I don't know, are trying to obfuscate the issue. I hope its not intentional. I never said that *NASA* couldn't tell someone where to find the satellite. All I said was that the trajectory on the pictorial was a computer-generated image based on the input the computer receives regarding a rotating earth. Someone else said quite a bit more than that: "Your pictorial exhibit of *Chandra's* movement is not real. It is a computer-generated image of the trajectory *Chandra* would transcribe on the earth if the earth were rotating." But because he knows the earth isn't rotating, he knows that *Chandra* doesn't follow the path over the ground that *NASA* predicts. In fact, he said, "by all appearances, you've been duped by a computer." But then I pointed out that astronomers use that same data to aim their telescopes, and so now this person has to do some frantic backpedaling. Now he says: "I didn't say the pictorial was wrong, at least not from a rotating earth framework." In fact, Gary Emerson can use that computer-based imagery and know that, from the perspective of a rotating earth framework, *Chandra* is going to be over a certain place at a certain time. Which means, of course, that the computer-based imagery is accurate. If it says *Chandra's* going to be "over a certain place at a certain time," it will be. And if an astronomer happens to be somewhere beneath that flight-path, he can program *NASA's* data into his computer-controlled telescope, and the telescope will point straight up at the appointed time. So, it seems that this other person is

now conceding that *Chandra* really does follow the ground-track that *NASA* predicts.

=====

AC Therefore, my original question remains unanswered: If the earth isn't rotating, how do you get a satellite to move around it in a crazy pattern like the one shown above?

=====

GEO I said the computer charts the pattern as if the earth were rotating. *Chandra* isn't making the lines on the graph, the computer is. The computer can do nothing else than what is put into it. If the computer is programmed to assume a rotating earth, then it must chart the course of *Chandra* on the earth AS IF someone on the ground watching *Chandra* were rotating against *Chandra*'s orbit every 24 hours. Since *Chandra*'s orbit is at an incline, this will account for the vertical lines on the graph. Since *Chandra* is circling west to east around the earth, this will account for the horizontal lines on the graph. But this doesn't mean the earth is rotating. It could also mean that the earth is actually stationary but that the computer must figure out what a graph would look like if the earth were rotating and *Chandra*'s whereabouts, with respect to a specific spot on the earth, needed to be charted. If you then tell the computer that the earth is stationary and ask it to tell you *Chandra*'s whereabouts with respect to a specific spot on earth, it will do so, but it will make a chart on the graph which is different than the squiggly lines in Emerson's original graph. Both graphs are true records of the systems they represent, but neither graph proves that the system they represent is the actual system operating.

As previously mentioned, *Chandra* does not have a big pencil that reaches to the earth and by which it marks out a trajectory.

=====

AC But if it did, it would mark out exactly the trajectory shown on *NASA*'s maps. Again, the fact that astronomers use this same trajectory data to aim their telescopes proves that *Chandra* is right where *NASA* says it will be relative to the surface of the earth.

=====

GEO No, it only proves that the system they are using will account for *Chandra*'s whereabouts with respect to a rotating earth, but it does not prove that the system is a reality, that is, that the earth is rotating.

Once again, the image we see in *NASA*'s pictorial is exactly what one would expect to see from a rotating earth. But that doesn't prove that the earth is rotating. All it proves is that if one assumes a rotating earth, the trajectory will follow the path depicted in the pictorial.

=====

AC No, the satellite follows that trajectory whether the earth rotates or not.

=====

GEO No, you haven't shown that. You haven't asked *NASA* to produce a pictorial of *Chandra*'s lines assuming a non-rotating earth. *NASA* could do so if they wished, or perhaps if you made that request of them.

=====

AC In other words, if you're standing somewhere on that looping yellow line, and you look up at the right time, you'll see the *Chandra* satellite. If the earth rotates, the ground-track makes sense. It's simply the result of superimposing a highly elliptical orbit over a rotating globe.

=====

GEO Yes, you will see *Chandra*, but that's because the computer has already shown you where the line of sight would be assuming that the earth is rotating. You must realize, and it has been hard for you to do so throughout these dialogues, that your system is not the ONLY one that can explain the motions we see in the sky. You think that just because his system works, then it discounts all other systems. But that is a fallacy. I think you've seen those tricky drawings that, if looked at in one way, the drawing looks like a lamp. If looked at another way, it looks like two people kissing. Same principle here.

=====

AC But if the earth isn't rotating, that means that somehow *Chandra* is able to go looping wildly around it, like a bee circling its nest.

=====

GEO No, because I'm saying that if the earth were not rotating, then the computer would not make all those squiggly lines. It would make a simple horseshoe shape or thereabouts.

But if one assumes a stationary earth and a rotating star system, the trajectory is going to be different. In this case, *NASA* would have to program the computer to assume a stationary earth, and then feed the information about *Chandra*'s ellipses, inclination and speed into the computer. The computer, programmed for a stationary earth, would then calculate the pictorial trajectory of *Chandra*. But in the case of a stationary earth, the earth would be showing the same face toward *Chandra* about 80% of the time (based on a 2.5 day flight-path and an apogee of 80,000 odd miles). In this case, the trajectory the computer will transcribe on the pictorial will be much simpler, that is, it will not have a long zig-zagging and looping line going all over the globe, rather, it will have a simple descending line in the shape of a horseshoe.

=====

AC Yes, if the earth weren't rotating, a satellite in an elliptical orbit would follow a simple trajectory relative to the ground. But because the earth is rotating, that satellite follows the bizarre trajectory shown in the image above instead. But whether the earth is rotating or not, that is *Chandra*'s actual flight-path over the ground. That's where you have to aim your telescope if you want to see it. How can you account for that flight-path if the earth isn't rotating?

=====

GEO I've already accounted for it by saying that the flight path is what an observer would see from earth based on a rotating earth. The computer gives that to him. The computer will say to him: "If you want to see *Chandra*, be at such and such a location at such and such a time" and it will be correct. Or the computer can say: "Point your telescope in such and such a direction at such and such a time" and you will be able to see *Chandra*. Why? Because the computer has already assumed a rotating earth. But you could also tell the computer that the earth is not rotating and then the computer will come back and tell you: "Be at such and such a place at such and such a time" and you will be able to see *Chandra*. In both cases, the computer will give you

the exact same location, whether its for a rotating earth or a stationary earth. The only thing that will be different is the trajectory line the computer traces out in each system.

It just so happens that the horseshoe trajectory of the stationary earth will circumscribe the zig-zagging and looping trajectory of a rotating earth AT EVERY POINT, since both systems account for *Chandra*'s whereabouts at all times.

=====

AC Except that if the earth isn't rotating, then *Chandra* isn't in an elliptical orbit; it's in a bizarre, spirally, loopy orbit. Mathematically, you could assume that the earth is stationary, and that *Chandra* is moving in a bizarre, spirally, loopy orbit. But in real life, it's just not possible for a satellite to move like that (not without a lot of fuel and a very powerful rocket). Therefore, we can rule out the idea that the earth is stationary. Instead, the flight-path over the ground followed by *Chandra* is the result of superimposing its simple elliptical flight-path over a rotating earth.

=====

GEO No, because you're basing that answer on the graph *NASA* gave you, not on proof that the earth is rotating. If *NASA*'s computer graph is made by merely assuming a rotating earth, then the graph doesn't prove anything for you. Hence, *Chandra* wouldn't have the "bizarre, spirally, loopy orbit" that you claim, since you are basing that answer on an unproven premise that the computer graph represents the ONLY possible reality.

More about inertial effect on satellites

GEO First, let me reiterate from a previous post that the gravitational force from the rotating stars (which is confirmed by the Lense-Thirring effect, and which you still have not addressed), and the gravitational force from the earth itself, both act upon the satellites.

=====

AC The "Lense-Thirring effect" is an effect predicted by general relativity. You don't believe in general relativity. Therefore, the Lense-Thirring effect is not available to you as an explanation for how satellites move the way they do in a non-relativistic, geocentric world. You can't have it both ways. You can't disclaim relativity and then appeal to it as the explanation of how satellites move.

=====

GEO I can, because one of the more convincing ways to cast doubt on your opponent's scientific presuppositions is use his own science against him. If you adopt Relativity, then you must adopt the aspects of Relativity that disprove your Heliocentric universe. You need to prove your case. If part of the scientific theory with which you are working (and of which I have made you aware) denies what you are proposing, then it behooves me to point that anomaly out to you.

Second: Let's take a closer look at *Marisat-3* which produces a figure-eight pattern. The reason it produces this pattern is that, first of all, its position with respect to the equator is about 10 degrees in inclination.

=====

AC Only if it's orbiting, which you deny. Remember, "inclination" is the angle between a

satellite's orbital plane and the plane of the equator...

GEO Not really. In my system, if *Marisat* is placed in position off the equator by the Pythagorean equivalent to what would be 10 degrees in your orbital inclination, then it will act with respect to that off-center placement.

Since the equilibrium of gravitational forces lies only on the equator, then any satellite which is inclined to any degree against the equator is going to produce some type of oscillation.

AC What makes you think there's an "equilibrium of gravitational forces" that "lies only on the equator"? I think a lawyer would say this answer "assumes facts not in evidence." You need to substantiate claims like this, not just assert them as conclusions following words like "since" and "because."

GEO First, this is not a court of law. It is a scientific forum. Both of us present evidence to this case which some might consider hearsay, conjecture, circumstantial evidence, etc. As I've said before, the mere fact that you cannot tell us what gravity IS, means you are working with a system of evidence which lacks the physical evidence required in a court of law. Your mathematical formulae without a physical model, if I may use your analogy, are merely circumstantial evidence, which, as you know, can be interpreted in a number of ways. Second, I am again using the scientific evidence that you use in your system, and upon which gravitational mechanics works, that is, that there is a neutral point of gravity and the centrifugal effect at the equator. We know this because the Foucault pendulum does not work at the equator. There are two explanations for this: your system or my system. In my system, the central plane of the geocentric universe cuts through the earth's equator, and thus explains the neutrality of the Foucault pendulum at that point.

How would this occur in a Geocentric universe in which the satellite is not orbiting the earth but is merely hovering about the earth, moving only slightly? Let me make an analogy. Let's say you are in a room. On one side of the room there is a 1,000 lb electro-magnet. On the other side there is a 100 lb electro-magnet. Both magnets are turned on and operating. There is a force from each magnet. Somewhere in the room, closer to the 100 lb magnet, there is an equilibrium of counter-acting magnetic forces, such that if a metal object were placed in that equilibrium, the metal object would remain suspended within the magnetic force. (There are plenty of experiments that do this very thing). To test this out, you place a steel ball in the equilibrium position between the two magnets. You see that the ball floats in mid air, suspended by the force of both magnets.

AC Okay, no problem so far.

GEO Now, before I go any further, if you haven't figured it out already, the 1,000 pound magnet represents the force of gravity from the stars. The 100 pound magnet the force of gravity from the earth.

=====

AC If you are planning to argue that geosynchronous satellites are floating in an equilibrium position between the earth (the 100 lb. magnet) and the stars (the 1,000 lb. magnet), you're going to have to explain why the moon, which is way past this "equilibrium point," doesn't go zipping off toward the stars. How can it orbit the earth if it's hundreds of thousands of miles on the stellar side of this alleged "equilibrium point"?

=====

GEO Because the moon is moving, which causes additional centrifugal effects, that a geosynchronous satellite does not have.

The steel balls represent the satellites. And one point of clarification before I proceed: the force of the stars, according to the Lense-Thirring Effect, is created by the billions of stars all acting upon the earth at the same time. These stars, as they rotate in their shell, produce large gravitational effects, according to the Lense-Thirring principle, supported by Einstein himself.

=====

AC But you say Einstein's theories are "an absolute farce." Therefore, you can't appeal to them to explain how things move in you non-relativistic, geocentric model.

=====

GEO See my previous answer.

This immense amount of stars makes up for the fact that the stars are far away. I say this to counter the idea that you were perpetuating, that the stars have a negligible force on the earth.

=====

AC Even if we assume that each star exerts tremendous force on us, the fact that we're surrounded on all sides by such stars means the forces would cancel out and the net effect would be zero. That is especially true if, as you say, the earth is the center of the universe.

=====

GEO If you were at the very center of the earth the forces would cancel each other out, for then you would be equidistant from all the stars. But the fact is that, anywhere on the surface of the earth, you are 4,000 miles closer to one side of the star system than the other, since the diameter of the earth is about 8000 miles.

Now back to the analogy. You place a steel ball in the exact place where the equilibrium of the magnets exists. What do you see? The steel ball remains motionless. But on your second attempt, you place the steel ball just a little left or right of the equilibrium point. What are you going to see?

=====

AC You're going to see the ball accelerate toward the stronger magnet and smash into it. Once you move away from the equilibrium point, you move into an area where one magnet is stronger than the other. Therefore, the net force on the ball is going to pull it toward that magnet, as shown in this figure:

In the above figure, you can see that at the equilibrium point between the two magnets, the force

of attraction on the ball is balanced, and therefore, as you say, the ball isn't going to move. But if you move the ball closer to the 1,000 lb. magnet the force of attraction from the 1,000 lb. magnet is going to be stronger than the force of attraction from the 100 lb. magnet, and the ball will accelerate toward the 1,000 lb. magnet. (The same thing will happen, of course, if you move the ball closer to the 100 lb. magnet.)

=====

GEO No, that's simply not true. You can go to a novelty store and prove this to yourself. They sell toys in which an object is suspended between two magnets. The object just hovers in space. You can also rotate the object, and it will act as if its in zero gravity (except for the friction forces close to the surface of the earth which will cause it to slow down). For an additional \$150, you can purchase a Jim-Dandy levitating world globe. It is a 9 inch diameter globe that levitates in mid air suspended between two electro-magnets. I like it because it gives a perfect picture of why *Job 26:7* and *Psalms 93:1* say that God "hangs the earth upon nothing" and that it "does not move."

You're going to see the steel ball oscillate, left to right and right to left, indefinitely, because the unequal magnetic force on either side of it will constantly tug at it.

=====

AC Nope, you're going to see it accelerate toward the stronger magnet and smash into it. In order to oscillate, when you move the ball closer to the 1,000 lb. magnet, the force of attraction from the 100 lb. magnet would have to be stronger than the force of attraction from the 1,000 lb. magnet, in order to pull the ball back toward the equilibrium point. Obviously, that's not the case, and therefore, oscillation is not physically possible in this scenario.

=====

GEO I suggest that you go to Sharper Image and play with the toy. If you placed the steel ball just a little above the equilibrium point, then you would see it oscillate up and down, indefinitely. If on a diagonal, you would see it oscillate diagonally. This is precisely what is happening with the Geo satellites.

=====

AC I've lost track: Is this your third or your fourth different attempt to account for the motion of geosynchronous satellites? It seems that each attempt is getting more absurd than the one before.

=====

GEO I don't know to which "third or fourth different attempts" you are referring. If you thinks I have given a different explanation, then I think you are required to say where I have done so, rather than make it appear as if I've been all over the map on this issue. I have never posited anything except the differential gravitational pull between the stars and the earth as the basis for my explanation. The only other thing I have offered is that the same gravitational forces could create an electro-magnetic field. If they are not placed precisely on the equator, but are inclined to one degree or another, then they will show some type of oscillation, indefinitely. They will oscillate with respect to the equator, since the equator is the balance point where all the forces cancel each other out.

=====

AC Here's another one of those unfounded assertions preceded by the word "since."

=====

GEO See my previous answer on this question. That is why all the diagrams you show have the center point of the oscillation precisely on the equator.

=====

AC No, the reason these satellites move an equal distance above and below the equator is because they are orbiting the earth in nearly circular orbits. As you can see from the above "inclination" figure, a satellite in such an orbit will always move equal distances above and below the equator. It has nothing to do with gravitational forces from the stars.

=====

GEO Mere assertion is not going to prove anything. The question you posed last was how I could explain the up and down motion of *Marisat* in MY system. To deny the answer, you would have to show that my system doesn't work, not that his works. My claim from the start is that both models work. The reason they are oscillating is because of the differential gravity between the stars and the earth.

=====

AC Even if that explanation made sense, which it doesn't, it still doesn't account for the zigzagging satellites. Why do they move in a slow and steady zigzag while the others don't?

=====

GEO I already explained this in the last post. The circumference of the loops is too small to show up on the graph, so they result in zig-zags. You've pointed out that the satellites have either a zig-zag or figure-eight pattern. Why are they different? Since the satellite is placed in an elliptical position, not a circular position, with respect to the earth, this means that the satellite cannot maintain its position unless it moves faster or slower against the inertial frame.

=====

AC Wait a sec, I thought these satellites weren't orbiting. What's this talk about "elliptical" and "circular"? These satellites are supposedly just levitating up there, remember?

=====

GEO I said they are in an elliptical position in respect to the inertial frame, which is the gravitational force between the stars and earth. The gravitational force causes what in your system appears as an elliptical orbit around the earth, but what in my system is an oscillation back and forth between the earth and the stars.

Thus, when the satellite is closest to the earth (the perigee) the satellite would be faster with respect to the inertial field (and from your perspective it would rotate around the earth in less than 24 hours); and when the satellite is farthest away from the earth (the apogee) the satellite would be moving slower with respect to the inertial field (or from your perspective it would take more than 24 hours to rotate around the earth).

=====

AC Again, that's only true if the satellite is in orbit. But you say it's not orbiting, and therefore, you can't appeal to the velocity differences at the perigee and apogee of an elliptical orbit. You need to come up with an explanation that makes sense for an object that's levitating, not orbiting.

=====

GEO It is not just levitating, it is oscillating across a levitation point. This movement is going to create various patterns. The closer the semi-major axis of the orbit lies along the apogee-perigee line, the wider the figure-eight pattern will appear, since it will be oscillating with greater force.

=====

AC What orbit? If these satellites are orbiting, then the earth is rotating. Are you ready to admit that they're really orbiting?

=====

GEO No, I'm using "orbit" to accommodate your system, not agree with it. When the semi-major axis lies along the equator, you will get neither a figure-eight nor a zig-zag, but you will get a slight north-south oscillation. You will get a zig-zag pattern when the semi-major axis is between the apogee-perigee line and the line of the equator. Or, to put it another way, when the period of the ellipses is slightly more or slightly less than 24 hours, you will get a zig-zag pattern.

=====

AC Yep, if the satellite is orbiting.

=====

GEO Already explained above. In effect, the figure-eights and the zig-zags are being produced from the same effect, except the diameter of some of the loops is too small to show up in the computer graph, so they turn out as zig-zags rather than the larger figure-eights.

=====

AC That's exactly right. In my world. Are you conceding that these satellites are orbiting in elliptical orbits having a period of approximately 24 hours, and that the earth is rotating beneath them?

=====

GEO Already answered above. Now, let me add one more dimension to this picture. Against what background is the figure-eight pattern or zig-zag pattern measured? In your universe it is measured against a rotating earth. In the Geocentric universe it is measured against a rotating star shell.

=====

AC No, they move in figure-eights and zigzags relative to the surface of the earth, whether the earth is rotating or not. It's just that if the earth's not rotating, there's no way to account for that motion, as you have amply demonstrated.

=====

GEO No, I have amply demonstrated that the satellites can oscillate between the earth and stars, and you have shown no material evidence against that possibility. In fact, you have denied the physics that an object can remain at equilibrium between two magnetic forces, and you have denied that they can oscillate. I suggest you purchase the levitating globe and you will see that principle of physics readily at work. Let me explain: If the earth is stationary, the stars are rotating around the earth every 24 hours. They will come back to precisely the same point each 24 hour period (allowing a little movement for precession, which I don't want to get into right now). We can see the satellites move against the background of the stars. On the first night we will see *Marisat* in a certain position against a particular star. But 24 hours later, we will see that *Marisat* did a figure-eight against the background of the star. (In case you're wondering, it makes no difference whether the star rotates around the earth, because every 24 hours the star will always come back to the same position in the sky).

=====

AC If we were at the equator, and if we were able to train our eyes on *Marisat-3* for 24 hours, we'd see it move around our sky in a figure-eight pattern. That's its motion relative to us. It has nothing to do with the stars. If we were somehow able to block our view of the stars and look only at *Marisat-3*, we'd still see it moving in a figure-eight pattern.

=====

GEO It has become apparent to me that you either don't understand or won't accept that a force outside the earth can affect an object placed above the earth. This is because you fail to accept the Machian principle that there is no difference between a rotating earth and a rotating star system, relative to US. Because of this, I believe this series of dialogues cannot progress any further, as I have stated previously. Is *Marisat* showing us real movement? Yes, it is real. *Marisat* is actually oscillating due to the fact that it is in a 10 degree inclination with respect to the earth's equator. Being in that inclination, *Marisat* will experience opposing gravitational forces from the earth-star gravity field, and thus it must oscillate back and forth between the equilibrium point, which is at the equator.

=====

AC Let us say, for the sake of argument, that these "opposing gravitational forces" were able to account for the north-south oscillation of *Marisat-3*. What accounts for its daily east-west oscillation? There can be no imbalance of forces parallel to the direction of rotation of the stars, so what makes *Marisat-3* oscillate east-and-west? And what makes *Brasilsat-1* move in a steady westerly direction?

=====

GEO If it's on an incline with respect to the equator, it will go east-west or northeast-southwest, or any combination of two compass opposite compass points. But what does *Marisat* look like from your universe? Since for you the earth is rotating, then you cannot attribute the movement to an oscillation of the satellite itself, but to the rotation of the earth against the inclination of the satellite. That is why you say that the figure-eights are only there by "appearance."

=====

AC Yes, that way I don't have to appeal to imaginary forces that control the movement of

artificial satellites, but don't effect the moon or the sun or the planets, all of which are allegedly able to orbit the earth every day, despite being well beyond the point of equilibrium between the gravitational forces of the stars and the earth. If your explanation were correct, every object beyond the equilibrium point where the geosynchronous satellites orbit – excuse me, levitate – should go flying off toward the stronger gravitational pull from the rotating shell of stars.

=====

GEO Again, this just shows your inability to address the issue because you don't know the physics. Your understanding about opposing gravitational and magnetic fields is wrong. Moreover, you do not try to answer my argument by showing that a gravitational field from the stars is impossible to happen. Rather, you resort to calling them “imaginary forces.” But I invite you to read the Lense-Thirring paper, and you will see that, even from your own science, they are not imaginary forces. And in my science, they are very real, even though we don't use Relativity theory to prove they exist. You have no answer for this, except to stoop to ridicule, simply because you are not familiar with the science I am presenting to you.

But does that prove the earth rotates? Not by any means. Since, as I have shown above, the same satellite movements can be explained from the perspective of a rotating star shell as much as they can be explained from a rotating earth. Thus, using the “movements” of the Geo satellites proves nothing for anyone. All it proves is the same thing I've been saying all along – there is no proof for a rotating earth as opposed to a rotating star shell.

=====

AC And I'll say what I've said all along. your latest attempt to account for the motions of these satellites is no more plausible than any of your previous attempts. In each case you have to appeal to relativistic forces, which he otherwise says are “an absolute farce,” and you have to appeal to orbital mechanics even though you claim these objects aren't orbiting. What you have not been able to do is come up with a credible explanation for this motion without borrowing from sources you claim not to believe.

=====

GEO Already answered. What I have in my favor is that because of the Lense-Thirring principle, which was supported by Einstein himself (a position which I detailed earlier).

=====

AC In which case you can't use it, because you say Einstein's relativity theories, from which the Lense-Thirring effect was derived, are “an absolute farce.” You can't have it both ways.

=====

GEO Again, I don't use Lense-Thirring to explain my universe, but you need it to explain yours. If you don't accept it, then Relativity goes out the window and you are forced to explain everything from Newtonian mechanics, which can't be done. Then I have a viable PHYSICAL explanation for the forces that would cause *Marisat* to oscillate in the figure-eight pattern, and therefore my assertion that no one can disprove that system still stands; and which also means that no one can prove that a rotating earth is the only explanation.

AC I have proved that your latest explanation is no more viable than the others. I'm eager to see what you try next.

=====

GEO Obviously, you haven't proved anything. You've just made assertions without knowing the physics behind what you claim.

=====

More on the ways of *Chandra*

AC Yes, but those lines represent *Chandra's* actual flight-path relative to the ground.

=====

GEO You still don't seem to understand what I've been saying. I do not disagree with you that the lines "represent" *Chandra's* actual flight-path. I've said over and over again that a person could use those lines to know where *Chandra* is located relative to the earth. But here's what you are either ignoring, denying or just simply refuse to accept: It is *Chandra's* actual flight-path relative to a ROTATING ground, not a STATIONARY ground. If the earth were STATIONARY the lines would be different. That is a fact. Thus, the lines do not prove the earth is rotating. They only prove what the flight path looks like assuming that the earth is rotating. Unless you deal with that point, this dialogue can go no further.

=====

AC You still don't seem to get what's happening here. That meandering line is *Chandra's* actual flight-path over the ground. That's where you have to aim your telescope if you want to see the satellite. If that line predicts that *Chandra* will pass over eastern Nevada, on a north-south heading, that means that an astronomer in eastern Nevada would be able to point his telescope straight up at the appointed time and see the satellite. If that line didn't represent *Chandra's* actual flight-path over the ground, astronomers wouldn't be able to use that ground-track data to aim their telescopes.

=====

GEO The only reason he can point his telescope up at the appointed time is because, according to the computer-generated chart of *Chandra's* flight path (which is based on a rotating earth), the computer will tell him to look at a certain place in the sky over Nevada at a certain time. But if you told the computer that the earth was not rotating and asked it to compute when *Chandra* was going to be over at Nevada, the computer would give you the exact same time as it would in the rotating earth calculation. That is a fact.

=====

AC Now, it being the case that this is *Chandra's* actual flight-path, our two respective systems must explain how a satellite can pass over the surface of the earth in that squiggly, loopy pattern. In my system, the trajectory is easily explained as the superimposition of an elliptical orbit over a rotating earth. But in your system, where the earth doesn't move, only the satellite moves. Therefore, the satellite must somehow steer itself along that wild, squiggly, loopy course. How does it do that?

=====

GEO If you then tell the computer that the earth is stationary and ask it to tell you *Chandra's* whereabouts with respect to a specific spot on earth, it will do so, but it will make a chart on the graph which is different than the squiggly lines in your original graph.

=====

AC Right, and if you then aim your telescope where this new graph predicts the satellite will be, it won't be there.

=====

GEO You've just admitted that your objection is a mere assertion, since you provided no evidence to back it up. You've never asked *NASA* to provide you with a graph of *Chandra's* flight path based on a non-rotating earth, have you? So you have no way of knowing what this graph would show. But I think your intuition is bright enough to know that the non-rotating earth graph will not have the squiggly lines you showed us in a rotating earth. Both graphs are true records of the systems they represent, but neither graph proves that the system they represent is the actual system operating.

=====

AC These aren't graphs of cosmological systems, they're graphs of the actual flight-path of a satellite relative to the ground. That satellite either passes over the specific places *NASA's* graph says it will, or it doesn't. Under no circumstances, though, can two different ground-tracks both be "true." One represents where the satellite will pass over the ground; the other does not.

=====

GEO Two ground-tracks can both be right, since one is from a rotating earth and the other from a non-rotating earth. You can prove this for yourself. Hang a can of paint from the ceiling, with a pinhole in the bottom, and swing the paint-can in a precise elliptical orbit. Beneath the can of paint, place a basketball. On your first try, let the paint stream from the can onto the basketball without turning the basketball. You're going to see a simple elliptical paint line made on the basketball. On your second try, put the paint-can in the same precise elliptical orbit and let the paint stream from the can onto the basketball while you're turning the basketball. You're not going to see a simple elliptical paint line. You're going to see that line go all over the basketball, back and forth, and side to side. But neither the paint can nor the basketball has moved its position relative to one another. The only thing that has changed is that the basketball was rotated in one scenario but not the other. *Chandra* does not have a big pencil that reaches to the earth and by which it marks out a trajectory.

=====

AC But if it did, it would mark out exactly the trajectory shown on *NASA's* maps. Again, the fact that astronomers use this same trajectory data to aim their telescopes proves that *Chandra* is right where *NASA* says it will be relative to the surface of the earth.

=====

GEO As the above example shows, it would only mark out that specific trajectory on a rotating earth, not a stationary earth. It only proves that the system they are using will account for *Chandra's* whereabouts with respect to a rotating earth, but it does not prove that the system is a reality, that is, that the earth is rotating.

=====

AC Then please tell me how a satellite can follow that squiggly, loopy trajectory over the ground if the earth isn't rotating. You keep avoiding that question.

=====

GEO No, I don't avoid the question. I've answered it many times. Here's the rub. It doesn't follow a squiggly loopy trajectory in a stationary earth. Until you ask *NASA* to show you a graph of *Chandra's* trajectory in a stationary earth, then you really have no basis for making the above statement.

Once again, the image we see in *NASA's* pictorial is exactly what one would expect to see from a rotating earth. But that doesn't prove that the earth is rotating. All it proves is that if one assumes a rotating earth, the trajectory will follow the path depicted in the pictorial.

=====

AC No, the satellite follows that trajectory whether the earth rotates or not.

=====

GEO No, you haven't shown that. You haven't asked *NASA* to produce a pictorial of *Chandra's* lines assuming a non-rotating earth. *NASA* could do so if they wished.

=====

AC Again, the lines I showed represent *Chandra's* actual flight-path over the ground. You yourself acknowledged this when you said that this chart showed that "*Chandra* is going to be over a certain place at a certain time." Exactly! Now, how do you account for that flight-path if the earth is stationary?

=====

GEO Since you haven't proven that the flight path would be the same in a stationary earth (because you haven't asked *NASA* to provide you with one), then your objection above is baseless. And as I will show below by using your own pictorials, you've actually disproven your own claims.

More on satellites

AC The "Lense-Thirring effect" is an effect predicted by general relativity. You don't believe in general relativity. Therefore, the Lense-Thirring effect is not available to you as an explanation for how satellites move the way they do in a non-relativistic, geocentric world. You can't have it both ways. He can't reject relativity and then appeal to it as the explanation of how satellites move.

=====

GEO I can, because one of the more convincing ways to cast doubt on your opponent's scientific presuppositions is to use his own science against him.

=====

AC But that's not what you're doing. You're not using Relativity against me, you're using it for yourself and offering it as the actual reason that geosynchronous satellites levitate above the

earth without falling. I don't appeal to Relativity to explain how geosynchronous satellites work. I say they're simply in orbit around a rotating earth. If you think they're really levitating in space, you need to explain how they do that, and if you can't do that without appealing to theories you otherwise reject, then all you've apparently proved is that geocentrism can't work without relativity. Let me quote you:

Lense-Thirring works in either a Relativity framework or a non-Relativity framework. So does Mach's principle. That's what stunned Einstein, and it was why he was forced to agree with it. That's why we use it. It bodes well for us, but not for you, since the effect of Lense-Thirring shows that there is more than one explanation for gravity, centrifugal and Coriolis forces on the earth. I think the problem is that you've never looked into either Lense-Thirring or Mach, and thus, regarding the physics, you are shooting from the hip in most of this discussion.

=====

GEO Since the equilibrium of gravitational forces lies only on the equator, then any satellite which is inclined to any degree against the equator is going to produce some type of oscillation.

=====

AC What makes you think there's an "equilibrium of gravitational forces" that "lies only on the equator"? I think a lawyer would say this answer "assumes facts not in evidence." You need to substantiate claims like this, not just assert them as conclusions following words like "since" and "because."

=====

GEO Second, I am again using the scientific evidence that you use in your system, and upon which gravitational mechanics works, that is, that there is a neutral point of gravity and the centrifugal effect at the equator.

=====

AC My system denies that there's a "neutral point of gravity" at the equator. That's your allegation, not mine. Please substantiate it. And since we've agreed that Relativity is a farce, Lense-Thirring is out.

=====

More on Coriolis and the pendulum

GEO As noted above, Lense-Thirring is not out. I would suggest you read up on Lense-Thirring before you so presumptuously dismiss it. Second, the Newtonian system (unless you want to throw that out too) agrees that the Foucault pendulum will not operate at the equator. Thus, call it what you will (I call it a "neutral point of gravity" which may not be the best term) but a rose by any other name is still a rose. There is no Coriolis effect at the equator, but there is one above and below it. That means something. And it is upon that basis I make my statements. What is your explanation for it?

How would this occur in a Geocentric universe in which the satellite is not orbiting the earth but is merely hovering about the earth, moving only slightly? Let me make an analogy. Let's say you are in a room. On one side of the room there is a 1000 lb electro-magnet. On the other side there is a 100 lb electro-magnet. Both magnets are turned on and operating. There is a force from each magnet. Somewhere in the room, closer to the 100 lb magnet, there is an equilibrium of counter-

acting magnetic forces, such that if a metal object were placed in that equilibrium, the metal object would remain suspended within the magnetic force. (There are plenty of experiments that do this very thing). To test this out, you place a steel ball in the equilibrium position between the two magnets. You see that the ball floats in mid air, suspended by the force of both magnets.

=====

AC Okay, no problem so far.

=====

GEO Now, before I go any further, if you haven't figured it out already, the 1000 pound magnet represents the force of gravity from the stars. The 100 pound magnet the force of gravity from the earth.

=====

AC If you are planning to argue that geosynchronous satellites are floating in an equilibrium position between the earth (the 100 lb. magnet) and the stars (the 1,000 lb. magnet), you're going to have to explain why the moon, which is way past this "equilibrium point," doesn't go zipping off toward the stars. How can it orbit the earth if it's hundreds of thousands of miles on the stellar side of this alleged "equilibrium point"?

=====

GEO Because the moon is moving, which causes additional centrifugal effects, that a geosynchronous satellite does not have. Which tends to pull the moon away from the earth, not toward it. If the moon went fast enough, it would reach escape velocity, and then it really would go zipping off toward the stars. So any motion on the moon's part only paints you into a tighter corner. I ask you again, then, because the moon is way past the "equilibrium point" between the earth and the stars, and because it's moving, why doesn't it go zipping off toward the stars?

The moon, because of its size, also has a gravitational effect against the earth's gravitational effect. I've already explained this. In the LaSagean system, the two bodies interact with each other as they disturb the aether around them. The geosynchronous satellites don't have any gravity for us to contend with, nor do they move, therefore, their equilibrium point with the earth is going to be far different than the moon's. The steel balls represent the satellites. And one point of clarification before I proceed, the force of the stars, according to the Lense-Thirring Effect, is created by the billions of stars all acting upon the earth at the same time. These stars, as they rotate in their shell, produce large gravitational effects, according to the Lense-Thirring principle, supported by Einstein himself.

=====

AC But you say Einstein's theories are "an absolute farce." Therefore, you can't appeal to them to explain how things move in your non-relativistic, geocentric world.

=====

GEO See my previous answer.

=====

AC Well, now that we've both agreed that Relativity is bunk, why don't you tell us what

force really accounts for this motion?

=====

GEO First, I'm glad to hear that you think Relativity is "bunk." You're halfway home. Second, neither gravity nor magnetism is dependent on Einstein's theory of Relativity. They work perfectly fine without Einstein. Thus, we don't need Einstein to tell us that apples fall from trees or that GSS can hover above the earth. The only thing for which we need Einstein is to use his own theories to show that the forces of the stars can account for the GSS, just as well as any earth-centered explanation, and he must agree. This immense amount of stars makes up for the fact that the stars are far away. I say this to counter the idea that Gary was perpetuating that the stars have a negligible force on the earth.

=====

AC They're still surrounding us on all sides. Whether the force is strong or weak, the net effect is zero.

=====

GEO If you were at the very center of the earth the forces would cancel each other out, for then you would be equi-distant from all the stars. But the fact is that, anywhere on the surface of the earth, you are 4,000 miles closer to one side of the star system than the other, since the diameter of the earth is about 8000 miles.

=====

AC Given the immense distance from the stars, 4,000 miles one way or the other is negligible.

=====

GEO You don't know it's "negligible." Also, you don't know how far away the stars are, nor do you know what kind of force they exert. You apparently have never studied the physics in Lense-Thirring's papers. In fact, those papers show that a 4,000 mile difference would present the same effect of gravity upon an object as the gravitational formulae in the Newtonian system, which are based on the inverse square of the distance between objects.

Now back to the analogy. You place a steel ball in the exact place where the equilibrium of the magnets exists. What do you see? The steel ball remains motionless. But on your second attempt, you place the steel ball just a little left or right of the equilibrium point. What are you going to see?

=====

AC You're going to see the ball accelerate toward the stronger magnet and smash into it. Once you move away from the equilibrium point, you move into an area where one magnet is stronger than the other. Therefore, the net force on the ball is going to pull it toward that magnet.

The equilibrium point between the two magnets, the force of attraction on the ball, is balanced, and therefore, as you say, the ball isn't going to move. But if you move the ball closer to the 1,000 lb. magnet the force of attraction from the 1,000 lb. magnet is going to be stronger than the force of attraction from the 100 lb. magnet, and the ball will accelerate toward the 1,000 lb. magnet. The same thing will happen, of course, if you move the ball closer to the 100 lb. magnet.

=====

GEO No, that's not true. You can go to a novelty store and prove this to yourself. They sell toys in which an object is suspended between two magnets.

=====

AC Those magnets repel from each other. Are you claiming that the earth repels satellites?

=====

GEO No, I'm saying that magnetic forces put in the right position can cause a body to levitate in mid-air. Since magnetic forces are analogous to gravitational forces, then the model fits. The object just hovers in space. You can also rotate the object, and it will act as if its in zero gravity (except for the friction forces close to the surface of the earth which will cause it to slow down). For an additional \$150, you can purchase a Jim-Dandy levitating world globe. It is a 9 inch diameter globe that levitates in mid air suspended between two electro-magnets. I like it because it gives a perfect picture of why *Job 26:7* and *Psalms 93:1* say that God "hangs the earth upon nothing" and that it "does not move."

=====

AC So, the earth is like a giant magnet that repels everything away from it, and yet somehow the whole universe is attracted to it and rotates around it every day? If you're right that there's an equilibrium point between the repulsive forces of the earth and the stars, why aren't low-flying satellites pushed away by the stronger force from the earth until they reach this equilibrium point?

=====

GEO I never said the earth repels. That's your statement. I said there is an equilibrium in the force of the stars with the force of the earth, analogous to (not the same as) a globe floating between two electro-magnets. You're going to see the steel ball oscillate, left to right and right to left, indefinitely, because the unequal magnetic force on either side of it will constantly tug at it.

=====

AC Nope, you're going to see it accelerate toward the stronger magnet and smash into it. In order to oscillate, when you move the ball closer to the 1,000 lb. magnet, the force of attraction from the 100 lb. magnet would have to be stronger than the force of attraction from the 1,000 lb. magnet, in order to pull the ball back toward the equilibrium point. Obviously, that's not the case, and therefore, oscillation is not physically possible in this scenario.

=====

GEO I suggest you go to Sharper Image and play with the toy.

=====

AC Oh, I don't deny that you can suspend an object between two magnets that are both repelling that object. But if you want to propose that as an explanation of how geosynchronous satellites don't fall, you'll open up quite a can of worms for yourself. Let me know if that's the direction you really want to go, and I'll give you a list of phenomena you simply can't explain.

In fact, geosynchronous satellites would probably be the only thing you could explain in such a system.

GEO “Can of worms”? “List of phenomena”? I’m open for anything thing you have. If you placed the steel ball just a little above the equilibrium point, then you would see it oscillate up and down, indefinitely. If on a diagonal, you would see it oscillate diagonally. This is precisely what is happening with the Geo satellites.

AC I’ve lost track: Is this your third or his fourth different attempt to account for the motion of geosynchronous satellites? It seems that each attempt is getting more absurd than the one before.

GEO I don’t know what “third or fourth different attempts” you are referring to. If you think I have given a different explanation, then I think you are required to show where I have done so, rather than make it appear as if I’ve been all over the map on this issue. I have never posited anything except the differential gravitational pull between the stars and the earth as the basis for my explanation.

AC Is it a “pull” or a “push” ?

GEO If I sometimes use “pull,” it’s to accommodate you, so you won’t get confused with the “push” alternatives in an opposing system. If they are not placed precisely on the equator, but are inclined to one degree or another, then they will show some type of oscillation, indefinitely. They will oscillate with respect to the equator, since the equator is the balance point where all the forces cancel each other out. That is why all the diagrams you show have the center point of the oscillation precisely on the equator.

AC No, the reason these satellites move an equal distance above and below the equator is because they are orbiting the earth in nearly circular orbits. As you can see from the above “inclination” figure, a satellite in such an orbit will always move equal distances above and below the equator. It has nothing to do with gravitational forces from the stars.

GEO Mere assertion is not going to prove anything. The question you posed in your last was how I could explain the up and down motion of *Marisat* in MY system. To deny the answer, you would have to show that my system doesn’t work, not that yours works. My claim from the start is that both models work.

AC Well, your system doesn’t work. If gravity is a “pull,” then you can’t explain why the moon, which is hundreds of thousands of miles closer to the stars than the “equilibrium point”

between the earth and the stars, doesn't go flying off toward the stars.

=====

GEO Already explained that above.

=====

AC Nor can you explain how geosynchronous satellites like *Hot Bird-2*, which moves thousands of kilometers toward the earth each day, don't just keep right on going. What turns them around? On the other hand, if gravity is a "push," then you can't explain why all orbiting objects aren't pushed away from the earth until they get to the point where the push from the stars balances the push from the earth.

=====

GEO Gravity is an interaction of objects with the medium surrounding them. You are misunderstanding what "push" means. As for problems about satellites wanting to "keep on going," you have more of a problem in your system than you claim I have in mine. Your system depends on the constant speed of a satellite, such as the moon, so that it doesn't fall to the earth. Yet it is a fact that the moon is tugged in all directions by differing gravitational pulls by the other planets and the sun. So why doesn't the moon slow down? And if it slows down because of these gravitational pulls from the planets, as it should, why doesn't the moon fall to earth because of a decaying orbit? Your system really has no answer for this, but the Geocentric system does, since the moon stays in orbit by the opposing forces between the stars and the earth, which are perfectly balanced. The reason they are oscillating is because of the differential gravity between the stars and the earth.

=====

AC Even if that explanation made sense, which it doesn't, it still doesn't account for the zigzagging satellites. Why do they move in a slow and steady zigzag while the others don't?

=====

GEO I already explained this. The circumference of the loops is too small to show up on the graph, so they result in zig-zags.

=====

AC I mean, what pulls them in a steady westerly direction? And why doesn't that force pull other satellites to the west?

=====

GEO They are oscillating with respect to their inclination. And we would expect them to go toward one direction, since the rotation of stars around them is always the same. Now, you'll notice in your list that the satellites have either a zig-zag or figure-eight pattern. Why are they different? Since the satellite is placed in an elliptical position, not a circular position, with respect to the earth, this means that the satellite cannot maintain its position unless it moves faster or slower against the inertial frame.

=====

AC Wait a sec, I thought these satellites weren't orbiting. What's this talk about "elliptical"

and “circular”? These satellites are supposedly just levitating up there, remember?

=====

GEO I said they are in an elliptical position in respect to the inertial frame, which is the gravitational force between the stars and earth.

=====

AC Sorry, this sounds like gibberish to me. Could you put it in plain English?

=====

GEO Let me try again. They aren’t orbiting. They are hovering above the earth, and oscillating between the forces below and above the earth’s equator. The gravitational force causes what in your system appears as an elliptical orbit around the earth, but what in my system is an oscillation back and forth between the earth and the stars.

=====

AC How does it do that in your system? You can’t go to the Sharper Image and make the object suspended by that magnet toy move in a perfect figure-eight; nor can you make it zigzag. Therefore, your explanation fails.

=====

GEO You need to play with the toy. You will see that if you push it one way, the object will bounce back the other way, and it will keep on oscillating until the friction of the air causes it to slow down. Thus, when the satellite is closest to the earth (the perigee) the satellite would be faster with respect to the inertial field (and from Gary’s perspective it would rotate around the earth in less than 24 hours); and when the satellite is farthest away from the earth (the apogee) the satellite would be moving slower with respect to the inertial field (or from Gary’s perspective it would take more than 24 hours to rotate around the earth).

=====

AC Again, that’s only true if the satellite is in orbit. But you say it’s not orbiting, and therefore, you can’t appeal to the velocity differences at the perigee and apogee of an elliptical orbit. He needs to come up with an explanation that makes sense for an object that’s levitating, not orbiting.

=====

GEO It is not just levitating, it is oscillating across a levitation point.

=====

AC How does an object oscillate across a “levitation point” in a perfect figure-eight?

=====

GEO By increasing the horizontal component of the sine wave. You can prove this by using an oscilloscope. It will produce a figure-eight pattern. This movement is going to create various patterns. The closer the semi-major axis of the orbit lies along the apogee-perigee line, the wider the figure-eight pattern will appear, since it will be oscillating with greater force.

=====

AC What orbit? If these satellites are orbiting, then the earth is rotating. Are you ready to admit that they're really orbiting, Bob?

=====

GEO No, I'm using "orbit" to accommodate your system, not agree with it.

=====

AC Then please explain how this works in your system. Don't worry about accommodating mine.

=====

GEO Already explained it. The satellite is oscillating above and below the earth's equator. In your system its "orbiting" in one plane and it appears to move because the earth rotates against that plane. Now, let me add one more dimension to this picture. Against what background is the figure-eight pattern or zig-zag pattern measured? In your universe it is measured against a rotating earth. In the Geocentric universe it is measured against a rotating star shell.

=====

AC No, they move in figure-eights and zigzags relative to the surface of the earth, whether the earth is rotating or not. It's just that if the earth's not rotating, there's no way to account for that motion, as you have amply demonstrated.

=====

GEO No, I've accounted for it, but you don't believe that I can explain how the GSS can hover above the earth. That's the whole issue. An oscillating GSS against a stationary earth DOES explain the various patterns. That is a fact. You choose not to accept that model because you can't accept that the forces of the stars and the earth can create a point at which the GSS can hover. But as you have shown over and over again in these dialogues, you don't know the physics. You didn't even know the Lense-Thirring and Machian effects until I brought them to your attention. All you know are Newtonian formulae for orbital mechanics. And since you've thrown out Relativity, then I'm at a loss how as to how you're going to explain all the anomalies in micro and macro physics that Newtonian mechanics can't begin to solve.

I've amply demonstrated that the satellites can oscillate between the earth and stars, and you've shown no material evidence against that possibility. Now I have. How do you account for it?

In fact, you have denied the physics that an object can remain at equilibrium between two magnetic forces, and you have denied that they can oscillate. I suggest you purchase the levitating globe and you will see that principle of physics readily at work.

=====

AC I suggest you do the same and try to get the levitating object to oscillate in a figure-eight and a zigzag. I submit that you can't.

=====

GEO In fact, you can make an object oscillate in just about any figure you desire, depending on which direction you give the initial push and how strong the magnets are. Let me explain: If the earth is stationary, the stars are rotating around the earth every 24 hours. They will come

back to precisely the same point each 24 hour period (allowing a little movement for precession, which I don't want to get into right now). We can see the satellites move against the background of the stars. On the first night we will see *Marisat* in a certain position against a particular star. But 24 hours later, we will see that *Marisat* did a figure-eight against the background of the star. (In case you're wondering, it makes no difference whether the star rotates around the earth, because every 24 hours the star will always come back to the same position in the sky).

=====

AC If we were at the equator, and if we were able to train our eyes on *Marisat-3* for 24 hours, we'd see it move around our sky in a figure-eight pattern. That's its motion relative to us. It has nothing to do with the stars. If we were somehow able to block our view of the stars and look only at *Marisat-3*, we'd still see it moving in a figure-eight pattern.

=====

GEO We're not talking about looking at it from earth. We're talking about looking at it from the photograph you presented with the stars in the background. You based the motion of the satellite on the stars, not the earth. It has become apparent to me that you either don't understand or won't accept that a force outside the earth can affect an object placed above the earth. This is because you fail to accept the Machian principle that there is no difference between a rotating earth and a rotating star system, relative to US. Because of this, I believe this series of dialogues cannot progress any further, as I have stated previously.

=====

AC I do accept that forces outside the earth can effect objects above the earth. I just don't see how any known (or conjectured) force can make a satellite hover over the earth, while moving in a figure-eight pattern. Your attempts to explain this movement have so far depended entirely on theories you otherwise reject, and conjectures that raise more questions than they answer.

=====

GEO As I said above, Lense-Thirring works in any system. So does Mach. Is *Marisat* showing us real movement? Yes, it is real. *Marisat* is actually oscillating due to the fact that it is in a 10 degree inclination with respect to the earth's equator. Being in that inclination, *Marisat* will experience opposing gravitational forces from the earth-star gravity field, and thus it must oscillate back and forth between the equilibrium point, which is at the equator.

=====

AC Why is the alleged equilibrium point at the equator? Please explain what leads you to this conclusion.

=====

GEO The Foucault pendulum.

=====

AC Let us say, for the sake of argument, that these "opposing gravitational forces" were able to account for the north-south oscillation of *Marisat-3*. What accounts for its daily east-west oscillation? There can be no imbalance of forces parallel to the direction of rotation of the stars, so what makes *Marisat-3* oscillate east-and-west? And what makes *Brasilsat-1* move in a steady

westerly direction?

=====

GEO If it's on an incline with respect to the equator, it will go east-west or northeast-southwest, or any combination of two compass opposite compass points.

=====

AC I can easily show you that there's no correlation between a satellite's east-west oscillation and its inclination. Try again.

=====

GEO Just the evidence, please. But what does *Marisat* look like in the heliocentric model? Since for you the earth is rotating, then you cannot attribute the movement to an oscillation of the satellite itself, but to the rotation of the earth against the inclination of the satellite. That is why you say that the figure-eights are only there by "appearance."

=====

AC Yes, that way I don't have to appeal to imaginary forces that control the movement of artificial satellites, but don't effect the moon or the sun or the planets, all of which are allegedly able to orbit the earth every day, despite being well beyond the point of equilibrium between the gravitational forces of the stars and the earth. If your explanation were correct, every object beyond the equilibrium point where the geosynchronous satellites orbit – excuse me, levitate – should go flying off toward the stronger gravitational pull from the rotating shell of stars.

=====

GEO Again, this just shows your inability to address the issue because you don't know the physics.

=====

AC Then explain it to me. I have a degree in Engineering Science and Mechanics. I'm sure I'll understand what you're saying. But so far you've just asserted things. I'm sorry, but I'm not just going to take your word for it that things behave the way you say they do. And I don't expect you to take my word for things, either. That's why I've spent so much time creating elaborate figures to illustrate what I'm saying.

=====

GEO Your "elaborate figures" don't prove anything for you. The apparent motion of an object can be explained in one of two ways: either the object is actually moving or the background behind or in front of it is moving. You can't tell which is correct unless you have some way of verifying it. Your understanding about opposing gravitational and magnetic fields is wrong.

=====

AC Not if those forces are pulling, which they would be if they were analogous to gravitational attraction. If they're pushing against each other then, yes, you could suspend something between them. Of course, then you'd no longer have a system that was analogous to the gravitational pull from the earth and the stars.

=====

GEO Pulling or pushing is not the issue. Equilibrium between the stars and the earth is the issue. Your system neglects the stars and attributes all centrifugal and Coriolis forces to the earth alone. Lense-Thirring says that is not our only option. If so, then you haven't proven that the earth rotates and the stars are fixed, unless, of course, you want to show us where Lense-Thirring went off the track. Moreover, you do not try to answer my argument by showing that a gravitational field from the stars is impossible to happen, rather, you resort to calling them "imaginary forces." But I invite you to read the Lense-Thirring paper, and you will see that, even from your own science, they are not imaginary forces.

=====

AC Fine, then they're imaginary from your science, because you reject Relativity. So what forces really account for the motion of these satellites?

=====

GEO If you knew the physics, you wouldn't dismiss Lense-Thirring based on Relativity. If you don't accept it, then Relativity goes out the window and you are forced to explain everything from Newtonian mechanics, which can't be done.

=====

AC I can explain the motion of geosynchronous satellites from Newtonian mechanics, and thereby prove that the earth rotates. And that's all I'm trying to do.

=====

GEO Not really. All you can do with Newton is give a mathematical formula to the GSS movement, but Newton doesn't explain why the GSS moves as it does. Neither you nor Newton have a physical explanation for movement. Math does not explain reality. It only puts opposing forces on either side of an equal sign.

AC Have you considered the issue of how water drains from sink (or toilet bowl)? You may be aware that if you are located above the equator, water drains in a counter-clockwise flow, while if you are located below the equator (e.g., in Australia), the flow is clockwise. I may have reversed the flows because I am writing from memory, but the point is that the flows reverse as you cross the equator and this phenomenon is attributed to the earth's rotation. In a static earth, what could be causing this phenomenon?

=====

GEO It is not true that drains go in one direction in the northern hemisphere and the opposite in the southern hemisphere. Even those who believe in a rotating earth say that the Coriolis effect with regard to drains is practically non-existent. In fact, I had a friend do a test for me in Australia last year. He said the water went down his drain in a counter-clockwise direction, the same as in my northern hemisphere.

On another plane, the Geocentric system does account for the Coriolis effect, but it does so by basing that force on the differential gravity between the rotating star shell and the stationary earth. This is why the Foucault pendulum works in the Geocentric system the same as it does in the Heliocentric system. If you want to familiarize yourself with the Machian principle of the Coriolis effect, as well as the Lense-Thirring effect supported by Einstein himself in order to help understand why a rotating star system would produce the Coriolis effects, please consult my

previous exchanges. Do a word search on Lense-Thirring and you will find it easy.

Shuttlecraft

AC According to *NASA* (<http://neurolab.jsc.nasa.gov/inclin.htm>) the Space Shuttle can be launched into orbit at various inclinations, depending on what a particular mission is intended to achieve. However, the Shuttle is always launched towards the east (see this image: <http://neurolab.jsc.nasa.gov/pixs/inclin.jpg>). This is done because the Earth (at the latitude of Cape Canaveral) rotates eastward at a speed of about 1500 kilometers per hour. By launching towards the east, the Shuttle adds the speed of the Earth's rotation to that of its rockets, and thus less fuel is needed to be burned to get the Shuttle into orbit.

This speed boost (and the presence of the ocean in the preferred direction of launch, in case of crashes) is why the shuttle is launched from Florida, which is near the equator and thus provides Shuttle launches with a large fraction of the possible benefit given to us for free by the Earth's rotation. The location of the spaceport used by the *European Space Agency* (ESA) was chosen for the same reasons. The ESA does not launch its rockets from Europe, but rather from Kourou in French Guiana in order to benefit from the Earth's rotation (and the same spaceport is also used by the private company Arianespace).

From the ESA's website (<http://www.esa.int/export/esaLA/spaceport.html>): "Kourou lies at latitude 5°3', just over 500 km north of the equator. ... Launchers also profit from the 'slingshot' effect (the energy created by the speed of the Earth's rotation around the axis of the Poles) as this increases the speed of the launcher by 460 m per second). Both these factors save fuel and money, and prolong the active life of satellites."

The following site discusses the limitations involved in launching rockets from Vandenberg Air Force Base in California in light of the fact that the Earth rotates to the east, while the ocean (again, in case of crashes) is to the south and west of Vandenberg:

From http://www.schnapp.org/sky/sky_vandenberg.html: Vandenberg Air Force Base is located near Lompoc, California, on the coast. The coast of California conveniently juts out into the Pacific at this point. This affords the Air Force and commercial customers very convenient access to westerly and southerly launch trajectories.

Launching a satellite to the west is not particularly desirable. Remember that the earth rotates to the east. At these latitudes, the earth's surface is moving at a pretty good clip, close to 1,000 miles per hour. If you launch to the west, you spend a lot of fuel canceling out that initial velocity.

No, for launches to a conventional orbit, Vandenberg is not terribly useful. Most low inclination (more or less equatorial) orbit customers launch from Cape Canaveral instead, where they have a clear path to the east. Instead, Vandenberg specializes in two kinds of launches: Polar orbits and missile tests. They are an ideal location for high inclination (more or less polar) orbits because of their clear path to the south. And the clear southwestern aspect allows them to launch *Minuteman III* and *Peacekeeper* missiles toward Kwajalein in the Marshall Islands.

So, in short, that the Earth rotates is proven by the practical fact that rockets need less fuel to launch towards the east than to the west. If the Earth didn't rotate, one could just as easily launch rockets into orbit in either direction.

=====

GEO The information you have given does not prove the earth is rotating. Here is the reason. We all agree that at least something is causing the day/night sequence on earth, and at least something must be causing the stars to appear to go around the earth each night. In the Heliocentric system, the day/night sequence and star movement is attributed to the earth's rotation; in the Geo-centric system it is attributed to the stars' rotation around the earth. Both systems will produce the same observable results.

It is also true that both the Heliocentric and Geocentric system will produce the same forces on Space Shuttles and satellites. In the Geocentric system, the rotating stars exert a gravitational force upon the earth that, along with the earth's contribution of gravity, results in the same centrifugal, Coriolis and Euler forces that Newtonian mechanics attributes solely to the earth.

As I've stated in other exchanges, Mach's principle allows me to make the equivalency. Here is what Mach himself said on the issue:

...all masses, all motion, indeed all forces are relative. There is no way to discern relative from absolute motion when we encounter them...Whenever modern writers infer an imaginary distinction between relative and absolute motion from a Newtonian framework, they do not stop to think that the Ptolemaic and Copernican are both equally true. (*Die Mechanik in ihrer Entwicklung historisch-kritisch dargestellt*, eighth ed, Leipzig, p. 222, 1921).

Thus, all the forces, as the "slingshot effect" you attribute to a rotating earth can be equally attributed to a rotating star system around a stationary earth. There is no difference.

Starlight, parallax & aberration

GEO It is explained in one of two ways: (1) the same effect would be observed if the stars are centered around the sun and partake of the sun's annual motion around the earth. (2) the sun has an aether field attached to it that sweeps past the earth with a period of one year. The sun's aether would drag the starlight with it and an aberration would be observed. Science knows this as the Fresnel Drag, and it is readily observable.

=====

AC Neither of your explanations can be correct, because they both conflict with observations.

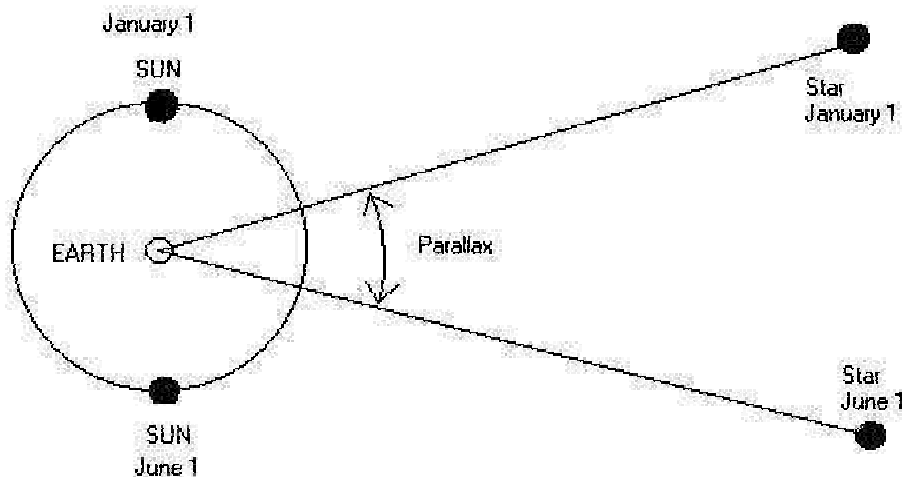
(1) If a distant star partakes of the sun's supposed annual motion around the earth then that star would be moving around in space in a circle 186 million miles in diameter (it would actually be an ellipse of the same size and shape as the earth's orbit around the sun, or as you would say the sun's orbit round the earth, but a circle is near enough). The star would appear to move around a small ellipse in the sky once a year, much as I described.

This effect is observed; it is parallax. For *Proxima Centauri*, the major axis of the ellipse is about 1.6 seconds of arc. For other stars, the ellipse is smaller, and we deduce from this that *Proxima Centauri* is the closest star to the sun. The wobbles in more remote stars, although they are all 186 million miles across, appear smaller to us (in seconds of arc) because they are further away.

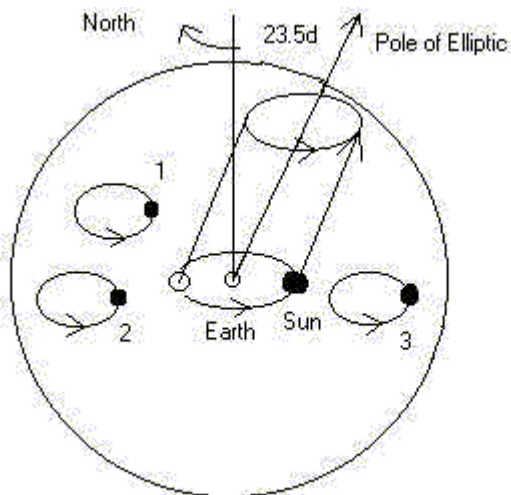
But stars appear to wobble in another way as well. All the stars in the sky appear to move around small ellipses in the sky once a year, and the major axis of all the ellipses is about 40 seconds of arc. The size of these ellipses is the same for all stars in the sky, it does not depend on how far away the star is.

The motion of a particular star in the sky is actually observed to be a combination of these two wobbles. There is one wobble whose size varies from star to star; this is parallax. There is another wobble whose size does not vary from star to star; this is the aberration of light. The motion of the star through space around a circle 186 million miles in diameter explains parallax, it does not explain the aberration of light. The motion of the earth through space around a circle 186 million miles in diameter, however, explains both.

GEO Let me answer your question regarding the “two wobbles.” First, the parallax is explained by the following diagram:



GEO The second movement of the stars relative to the earth is explained by the next diagram:



GEO The earth is in the center. The DAILY rotation of the stars (or universe) is shown above by the axis marked north, going in the clockwise direction.

The ellipses represent the YEARLY motion of the stars (or of the whole universe). The yearly motion is due to the wobble in the universe around the axis from the earth to the point marked

“Pole of the Elliptic.”

The YEARLY motion is not a rotation, but a back-and-forth motion. In the course of one year, the line marked Sun-A traces out the cylinder shown.

At the same time, Stars 1, 2 and 3 trace out their respective paths.

The dark circle shows the sun on the first day of winter. The open circle on the other side of the sun’s circuit is its position on the first day of summer, and is the same for stars 1, 2 and 3.

If there were no daily rotation, stars 1 and 2 would always be to the left of the earth, and star 3 would always be to the right.

This is how the Geocentric model explains the “wobbles”

=====

AC (2) The size of the Fresnel drag depends on the refractive index of the medium through which the light is passing. The resulting angle of aberration can be derived from Snell’s law of refraction using some simple mathematics, and is given by the following formula: angle of aberration (in radians) = $(V / c) * (1 - (1 / R))$ where V is the speed of the medium, c is the speed of light, R is the refractive index of the medium. The refractive index of space in the inner solar system is very close to 1. Putting this value into the formula gives us an angle of aberration that is very close to 0. No doubt you’ll ask “How close?”. Well, if R is 2 then the angle of aberration would be $(18 / 186000) * (1 - 1/2)$, which is about 4.8E-5 radians, or about 10 seconds of arc. This is half the observed value. R would have to be greater than 2 to get an answer closer to the observed value. On the other hand, if R were 2 or more then there would be all sorts of strange refraction and total internal reflection effects when looking up out of the earth’s atmosphere at the night sky. We do not see these effects, and therefore R is much smaller than 2.

So we must conclude that R is greater than 2 to explain the aberration of light (if it is caused by Fresnel drag), and that R is much less than 2 to explain the appearance of the night sky. Since R cannot be both greater than 2 and much less than 2, we must conclude that the aberration of light is not caused by Fresnel drag. It is in fact caused by the motion of the earth around the sun.

=====

GEO As I said in my last exchange, Fresnel drag is only one component of the answer. As you can see by the above diagrams, the other component is the daily and yearly motion of the sun and stars, of considerable degree, to account for the aberration. In fact, it does most of the explaining. But in regard to the Fresnel drag, I only used that term as what current science explains as light-frame dragging. I didn’t say it was the same thing as what is actually occurring. My post stated that the second possible explanation is that the sun has an aether-field around it which would drag the starlight. Although this is the same principle as the Fresnel drag, it is not the same thing, since modern science does not equate aether-fields with Fresnel drag.

Gravity & where God “hung” earth

AC I pose a few questions: These are not meant to disprove geocentric theory, just to clarify it. Do you believe it theoretically possible to evacuate a space completely, so no aether is within the volume? If so, should gravity not exist within the space? Or does aether, as J. C. Maxwell and others believed, permeate all things? If so, it cannot be responsible for gravity, because, if it easily travels through matter without resistance, how can it exert a force on heavenly bodies? If

there is resistance, should not there be an aethereal drag force slowing everything down?

=====

GEO Gravity does not travel through matter. Gravity is a result of the disturbance an object makes in the aether. The more massive the object, the greater the tension it will cause in the aether, which will result in greater gravitational force. Since the aether is at Planck dimensions, that means that its reaction time is about 5.391×10^{-44} , and thus “gravity” can exist simultaneously over very vast distances. Science has already observed this in the immediate reciprocity of gravitational effects between the sun and the earth. Unfortunately for modern science, they have no way of accounting for these instantaneous gravitational effects, since they have concluded nothing can travel faster than light, which takes 8.5 minutes to travel from the sun to the earth. If gravity took 8.5 minutes to travel the 93 million miles, well, we wouldn't be here to talk about it. Science also knows that the Planck particles exist, but since they've rejected aether theory, they are forced to say that the particles come into existence for 10^{-44} seconds and then just disappear, popping in and out of existence continually. And they say that Geocentric theory is crazy?!

=====

AC At what height above the earth does gravity “stop”, as you apparently think it does?

=====

GEO Gravity doesn't stop. Rather, the tension that an object creates on the aether is decreased the farther away one is from the object.

=====

AC Where in the *Bible* does it explicitly say the sun, or stars move AROUND the earth?

=====

GEO *Wisdom 13:2* But have imagined either the fire, or the wind, or the swift air, or the circle of the stars, or the great water, or the sun and moon, to be the gods that rule the world.

Job 9:7 He commands the sun, and it rises not; he seals up the stars.

Psalms 8:4 When I see your heavens, the work of your fingers, the moon and stars that you set in place –

Judges 5:20 From the heavens the stars, too, fought; from their courses they fought against Sisera.

Wisdom 7:18-19:18 The beginning and the end and the midpoint of times, the changes in the sun's course and the variations of the seasons. 19 Cycles of years, positions of the stars,

Psalms 19:4-6 4 In them He has placed a tent for the sun, 5 Which is as a bridegroom coming out of his chamber; It rejoices as a strong man to run his course. 6 Its rising is from one end of the heavens, And its circuit to the other end of them; And there is nothing hidden from its heat.

Sirach 43:1 The clear vault of the sky shines forth like heaven itself, a vision of glory. 2 The orb of the sun, resplendent at its rising: what a wonderful work of the Most High! 3 At noon it seethes the surface of the earth, and who can bear its fiery heat? 4 Like a blazing furnace of solid metal, it sets the mountains aflame with its rays; By its fiery darts the land is consumed; the eyes

are dazzled by its light. 5 Great indeed is the LORD who made it, at whose orders it urges on its steeds. 6 The moon, too, that marks the changing times, governing the seasons, their lasting sign, 7 By which we know the feast days and fixed dates, this light-giver which wanes in its course: 8 As its name says, each month it renews itself; how wondrous in this change! 9 The beauty, the glory, of the heavens are the stars that adorn with their sparkling the heights of God, 10 At whose command they keep their place and never relax in their vigils. A weapon against the flood waters stored on high, lighting up the firmament by its brilliance,

1 Esdras 4:12 The earth is vast, the sky is lofty, the sun swift in his course, for he moves through the circle of the sky and speeds home in a single day. How great is he who does all this

Joshua 10:10-12 On this day, when the LORD delivered up the Amorites to the Israelites, Joshua prayed to the LORD, and said in the presence of Israel: Stand still, O sun, at Gibeon, O moon, in the valley of Aijalon! 13 And the sun stood still, and the moon stayed, while the nation took vengeance on its foes. Is this not recorded in the Book of Jashar? The sun halted in the middle of the sky; not for a whole day did it resume its swift course. 14 Never before or since was there a day like this, when the LORD obeyed the voice of a man; for the LORD fought for Israel.

Sirach 46:3-4 And who could withstand him when he fought the battles of the LORD? 4 Did he not by his power stop the sun, so that one day became two?

Ecclesiastes 1: 5-6 The sun rises and the sun goes down; then it presses on to the place where it rises. 6 Blowing now toward the south, then toward the north, the wind turns again and again, resuming its rounds.

=====

AC In the verses you mention, I have only read statements saying that the Sun moves and the earth does not. I interpret this as meaning simply that the Sun moves relative to the inhabitants of the Earth, which it does. We're all on the Earth, so it makes more sense this way. God says in several places that he has "established" the Earth, meaning that he has caused it to move in a stable, fixed, elliptical orbit.

=====

GEO If there were any passages in Scripture that say the earth moves, you would have a point, but there are none. The passages which refer to the earth from an astronomical perspective say that it is not moving. For example,

Psalms 93:1-2 The LORD reigns, He is clothed with majesty; The LORD has clothed and girded Himself with strength; Indeed, the world is firmly established, it will not be moved. 2 Your throne is established from of old; You are from everlasting.

1 Chronicles 16:30 ...tremble before him, all the earth; yea, the world stands firm, never to be moved.

Psalms 104:5 He established the earth upon its foundations, So that it will not totter forever and ever.

Psalms 119:90 Your faithfulness continues throughout all generations; You established the earth, and it stands.

In these references the word “establish” is the Hebrew *kun*. It is in the Niphal form, which means it was made such by an outside agent (God). But you should know that *kun* has a wide variety of meanings. The meaning the heliocentrists often attach to the above verses is that “establish” merely means to “begin” or “found.” We often use this meaning in English in saying, “That building was established in 1924,” meaning that it was founded in 1924. But *kun* means something more. *Kun* can refer to something fixed and immovable. *Kun*’s variation in meaning depends on the context it is placed. For example in *1 Chronicles 22:10* it reads: “He shall build a house for My name, and he shall be My son and I will be his father; and I will establish the throne of his kingdom over Israel forever.”

Obviously, “establish” cannot mean merely “to begin.” It refers to the continual upholding of the state in which it began.

Also, in *Judges 16:26, 29*: “And Samson grasped the two middle pillars upon which the house rested, and he leaned his weight upon them, his right hand on the one and his left hand on the other.”

The word “rested” is the Hebrew *kun*, depicting a house that is motionless and stationary upon the pillars it was built.

Ezra 3:3 gives the same meaning: “They set the altar in its place, for fear was upon them because of the peoples of the lands...”

Another issue is the use of the Hebrew *mot* in *Psalms 93:1; 1 Chron 16:30; Psalm 119:90*. When applied to physical objects, this word refers exclusively to movement (cf. *Jb 41:23; Ps 125:1; 140:10; Is 40:19; 41:7*). But in the usages of *mot*, the only time the earth is said to move is in the apocalyptic language of *Is 24:19*, which coincides with the apocalyptic language of *Mt 24:29-30; 2 Peter 3:10-13*, but that is at the end of the world.

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AC God says in several places that he has “established” the Earth, meaning that he has caused it to move in a stable, fixed, elliptical orbit.

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GEO But do you see what you are doing here? You are interpreting the verse literally as referring to the earth’s astronomical dimensions, rather than interpreting the verses figuratively as referring to the earth’s strength or longevity. But interpreting literally is the same thing that I do with the verse, but much more in-line with what the verse says, since it also says the earth does not move, whereas your literal interpretation says it does move.

=====

AC You are basically right in that it is possible that the Sun could move around the Earth. The theories of gravity state that it is a question whether one body orbits the other or vice versa is simply a question of which body is most massive. Anyway, yes, through God all things are possible. The reason for the accepted theories of physics is that they are simpler and don’t require God to move everything around. They do not imply that the *Bible* is wrong, or that God does not exist. On the other hand, your personal beliefs about gravity make no sense whatsoever.

=====

GEO First of all, they are not my “personal beliefs” about gravity. They follow the theory of gravity developed by LaSage over 400 years ago, a theory he received from his predecessors. LaSage’s corpuscular theory answers to the Planck dimensions of the aether I mentioned above. Second, if there is any system that has “personal beliefs” about gravity, it is the Newtonian system. Why? Because Newton did not have a physical explanation for what gravity IS. The only thing Newton did is put the EFFECTS of gravity in mathematical equations. Anybody can do that. But Newton has no explanation for gravity itself, nor does modern science. They speak today of “gravitons,” but no one has ever seen or distinguished a graviton. And without an explanation for gravity, this means that most of what science claims it knows is at best speculative, and at worst, absolutely wrong. As for mass determining orbit, Newtonian mechanics does not even say that. The origin of orbit is not explained by Newton, only how the orbit sustains itself by opposing forces. And in the Einsteinian universe, one cannot say that one object is going around another, since all motion is relative.

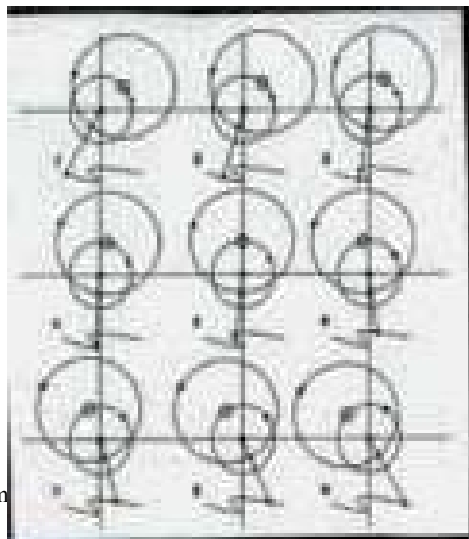
Some planetary motions, from spacecraft observations

AC Our spacecraft to the outer parts of the solar system (*Voyager, Magellan, et al*) have observed that the superior planets and asteroids are NOT moving in epicycles. For example, when the planet appears from Earth to be moving in retrograde (westward relative to the stars) motion it is NOT actually moving westward, but only appears to be doing so due to Earth's motion. Whether the planet is changing direction (making loops) is easily determined by positional measurements by spacecraft. But, if the planets were making loops, our spacecraft would have never been able to rendezvous with them since our trajectories are based on the correct (heliocentric) picture of the solar system.

=====

GEO You are, of course, referring to the retrograde motion of the outer planets, but this is easily explained in the Geocentric system.

GEO In this diagram, the earth is located on each of the nine cross-hairs. It is stationary. The sun is revolving around the earth in the smaller circle, while Mars is revolving around the sun in the larger circle. Each cross-hair frame represents one moment in the sun's revolution around the earth and the same moment of Mars' revolution around the sun. The squiggly line represents how Mars would be viewed from earth at each frame. You can see that by frame #4, Mars has already started its retrograde. Incidentally, this is the same retrograde you would see in the heliocentric model.



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AC By-the-way, I am curious whether you assume that the Earth is rotating? There is evidence to prove the rotation of Earth, but I am not sure if you accept Earth's rotation. Also, I would still like your response to my questions at the bottom of my first e-mail (below) – about the sun being the center of the galaxy.

=====

GEO No, I do not believe the earth is rotating, and there is no proof that it is. Most of the so-called “proofs” have already been answered in previous exchanges.

Sagnac & an Einstein cover-up

AC I was a little perplexed by two aspects of your response in a previous exchange. Firstly, in your discussion of the Sagnac effect, are you referring to the same effect so elegantly accounted for here in the link below? Note the author's assertion that the effect in no way contradicts relativity, although it is not itself a relativistic effect.

<http://www.mathpages.com/rr/s2-07/2-07.htm>

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GEO Obviously, Relativity needs to have an explanation for the Sagnac effect, but according to physicist Herbert Ives (which no Relativist I know has ever refuted), Relativity CANNOT explain the Sagnac effect. One of the most important but overlooked books on this subject is *The Einstein Myth and the Ives Papers* by Dean Turner and Richard Hazelett. I've read the book from cover to cover making extensive notes along the way. If you're a math buff, Ives has pages and pages of calculus to prove his point. I suggest you give it a good review. The Sagnac material is located in Part IV, page 247ff.

Moreover, the Relativistic attempts to deal with the Sagnac effect have incorporated aether in the solution, so it is not really a Relativistic solution (See Post, E. J., 1967, Rev. *Modern Physics*, 39:475).

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AC Secondly, early on you seem to suggest that Michelson-Morley experiments fail to detect aether drift because the earth is stationary with respect to the aether. Later on, however, you suggest that heavenly bodies are embedded in an aether rotating with respect to the Earth. If the latter, surely Sagnac apparatus and Michelson-Morley experiments should give results different from those observed?

=====

GEO Actually, the 1887 M-M experiment did have a small positive result. Unfortunately, modern physics books don't point this out at all. And they detected that small positive result in only 36 trials, and with their somewhat primitive equipment. Dalton Miller's experiments of 1933, which he repeated over 100,000 times, showed the same positive result as M-M. His apparatus was four times as sensitive as M-M's. Yet Einstein and R. Shankland tried to discredit Miller's results by using the few trials that even Miller himself had thrown out due to temperature effects and faulty equipment. Thus, M-M, Sagnac, Miller, as well as Michelson-

Gale of 1925, all detected an aether in drift. What they couldn't tell us was whether the aether was moving around the earth or the earth through the aether. But in the geocentric system, of course, the aether drift is caused by the rotating universe, not a rotating earth. By the way, Einstein makes no reference to Sagnac or Michelson-Gale in any of his works.

More on gravity

AC When you have an earthquake the day is a little bit longer. Most people believe that that is because the motion disturbs the orbit of the earth. Alternatively you could say that the information of the earthquake is instantaneously transmitted to the whole of the universe which then changes the speed of its motion, thereby violating conservation of energy, one of the most basic precepts of Newtonian mechanics. And when you say there is no proof of the existence of gravity, why not try and fly from a high story building. Mach's experiment does not serve the purpose you advocate, and I do not think that you understand it properly.

GEO The following words of Ernst Mach:

...all masses, all motion, indeed all forces are relative. There is no way to discern relative from absolute motion when we encounter them...Whenever modern writers infer an imaginary distinction between relative and absolute motion from a Newtonian framework, they do not stop to think that the Ptolemaic and Copernican are both equally true. (*Die Mechanik in ihrer Entwicklung historisch-kritisch dargestellt*, eighth ed, Leipzig, p. 222, 1921).

I have never advocated that gravity doesn't exist. I said that the Newtonian system has never explained what gravity IS. The only thing Newton did is put the EFFECTS of gravity in mathematical formulae. That is not hard to do. But Newton himself admitted that he had no explanation for the substance or nature of gravity.

Gravity is a result of the disturbance an object makes in the aether. The more massive the object, the greater the tension it will cause in the aether, which will result in greater gravitational force. Since the aether is at Planck dimensions, that means that its reaction time is about 5.391×10^{-44} , and thus *gravity* can exist simultaneously over very vast distances. Science has already observed this in the immediate reciprocity of gravitational effects between the sun and the earth. Unfortunately for modern science, they have no way of accounting for these instantaneous gravitational effects, since they have concluded nothing can travel faster than light, which takes 8.5 minutes to travel from the sun to the earth. If gravity took 8.5 minutes to travel the 93 million miles, well, we wouldn't be here to talk about it. Science also knows that the Planck particles exist, but since they've rejected aether theory, they are forced to say that the particles come into existence for 10^{-44} seconds and then just disappear, popping in and out of existence continually. And they say that Geocentric theory is crazy?!

Church position on geocentricity

AC I was reading an old *Remnant* magazine and I came across an article which addressed Geocentricism. Part of the article reads:

The reigning Pope Paul V declared that the proposition that the sun is the center of the universe is "philosophically foolish and absurd and is formally heretical, inasmuch as it expressly contradicts the teaching of many texts of Holy Scripture, both according to their literal meaning and according to the common explanation and

interpretation of the Holy Fathers and learned theologians.” This judgment was reaffirmed as infallible by Urban VIII and Alexander VII. (Bull *Speculatores Domus Israel*, 1664)

What would your thoughts be on this, especially the statement that Urban and Alexander infallibly affirmed the geocentric understanding of those verses? Thanks.

=====

GEO The above analysis is a little distorted. First, the quote attributed to Pope Paul V was not from him directly but from the *Congregation of the Index* of March 5, 1616. It is assumed that Paul V approved these words, however, since he presided at this session of the *Inquisition* where the matter was discussed and decided. His name, however, does not appear in the decree.

Neither Urban VIII nor Alexander VII stated that the March 5, 1616 decree by the *Congregation of the Index* was “infallible.” To my knowledge, no statement issued by the *Congregation of the Index* was ever deemed infallible, and no pope endorsing a decision by the *Index* was ever deemed infallible. Urban VIII’s statement enforcing the *Index*’s prohibition of Copernicus’ book was issued “*in forma communi*” (a formal communication) but that has never been considered as infallible.

Moreover, Alexander VII’s *Speculatores Domus* was not a “bull,” but rather a papal “brief.” In 1664, Alexander VII published a new official *Index*, which differed from prior ones in style but had the same content. The only things Alexander VII added were the *Index*’s prohibitions from 1596 to 1664, which the previous *Index* did not have. That was the essence of the “brief.”

As such, the prohibitions against the Copernican system were included by *Speculatores Domus*, but none of these documents have the rank of “infallibility.” Infallibility can only come from a dogmatic ecumenical council or from a papal decree issued *ex cathedra* and fulfilling all the criteria of Vatican One definition of infallibility.

Third, in 1758, Benedict XIV removed Copernicus’ books from the *Index*, but this was not a decision that was approving of Copernicanism. Benedict was merely following through with what was originally decreed by Pope Paul V in 1616 through the *Congregation of the Index* that Copernicus’ book would be banned “until corrected.” In 1620, a list of the needed corrections was issued by the *Index*. They demanded the removal of nine sentences from Copernicus’ book, sentences that had affirmed the heliocentric system as a certainty. Once the certainty of the system was removed, the book was taken off the *Index*.

AC As to the Pope’s attendance at the session of the *Inquisition*, Fantoli states: “It is clear from both documents that the pope did not take part in the session, contrary to what is generally stated.”

=====

GEO Fantoli is dependent on the same evidence upon which everyone else is dependent. We all know that Pope Paul V’s name does not appear on the March 5, 1616 decree of the *Congregation of the Index*. That is not in dispute. But everyone recognizes that Paul V was presiding at the *Inquisition*. Moreover, Paul V would have had to approve of the *Congregation*’s ban on Copernicus’ books, since he approved of every other decision made by the *Congregation of the Index*. Thus, “not taking part in the session” does not really prove anything for Fantoli.

AC Instead Fantoli writes:

A decree of the Holy Office, September 11, 1822 stated: “The most excellent [cardinals] have decreed that there must be no denial...of permission to print and to publish works which treat of the mobility of the earth and of the immobility of the sun, according to the common opinion of modern astronomers as long as there are no contrary indications, of the basis of the decrees...” This decree was approved two weeks later by Pope Pius VII...With this decree of the Holy Office the official dossier regarding the Copernican question is closed...Thirteen years later in 1835, on the occasion of the new edition of the *Index* of forbidden books, the Copernican books...as well as Galileo’s *Dialogue*...were finally removed from the list.

GEO This information neither negates nor disagrees with any of the information I have stated previously. In fact, it just strengthens my case. Already as early as 1616, as I have previously stated, the *Congregation of the Index* said that Copernicus’ book would be removed from the *Index* if nine statements asserting the certainty of heliocentrism were excised. Pope Urban VIII affirmed this decision. In 1620, the list of those nine statements were given to the editors of Copernicus’ book. The editors eventually removed those nine statements. This paved the way for Pope Pius VII to take the Copernicus’ book off the *Index*, which he did. But in doing so, Pius VII confirmed that Copernicanism could not be taught as a certainty, in agreement with Pope Paul V and Pope Urban VIII. Thus, there is no discrepancy in this matter. Moreover, if Pope Pius VII’s decision means the matter is “closed,” that means that Copernicanism still cannot be taught as a certainty, for that was the last word given from the papal office.

Moreover, note the wording of Pius VII: “...according to the common opinion of modern astronomers as long as there are no contrary indications of the basis of the decrees...” First, he refers to the “opinion” of modern astronomers, and thus he does not say that their teaching of heliocentrism is a fact. It is only an “opinion.” Second, his statement: “as long as there are no contrary indications, of the basis of the decrees...” refers right back to Pope Paul V and Pope Urban VIII, whose “decrees” said that Copernicanism could not be taught as a certainty. Again, Pius VII is in complete agreement with Paul V and Urban VIII.

AC Re: the question of ‘orthodox’ Catholics interpreting Scripture non-literally when it comes to passages allegedly teaching geocentrism, I ask if it can be said that these Catholics are instead interpreting these passages literally, given the context of the biblical authors? My understanding is that the exact or primary meaning of a word or words is to be upheld for there to be a literal interpretation. Therefore the phrase ‘the sun rises or sets,’ if it is taken to be a scientific affirmation, literally means the sun is in actual movement over the earth. If the phrase is taken to be a sensorial affirmation, then literally it means the sun by appearance moves over the earth. I am assuming – for I have not checked all the passages – that the intention of the biblical authors who speak of the sun rising, etc. is to speak in a common manner and not scientifically.

GEO As I said before, the sun rising or setting language is not the main basis for the geocentric understanding of the *Bible*. The passages which say the sun was stopped from moving; the passages which say the sun moves in its circuit in one day; and the passages which say the earth does not move, are the bases of the geocentric position as far as Scripture is concerned. The numerous passages that speak of the rising or setting are merely additional information which coincides with the primary information. (The primary passages which teach geocentrism are included in previous exchanges). As such, I can agree that the “rising or setting” language, if we had no other information, could be taken as expressing that the sun moves with respect to a stationary earth; or phenomenologically, that is, it appears the sun is moving. But the problem is that unless you have a way of dealing with the other more explicit Scriptures of the sun’s movement and the earth’s immobility, then you can’t rest your case on the rising and setting language.

AC There must be no clues that the authors intended to propose scientific data to their audience, otherwise it would seem that the Holy See would not have allowed Catholic authors to defend the Copernican theory.

GEO The Holy See allowed Catholic authors to defend Copernicanism as long as they did not treat it as a certainty. The Holy See also agreed that, if it could be proven that the earth went around the sun, then biblical interpretation must incorporate that fact. But the fact remains that Copernicanism was not proven then, and it has not been proven today.

AC Therefore it would seem that one can argue that the biblical authors were simply doing as we do when we commonly speak of the sun rising and setting, intending thereby to only make sensorial affirmations.

GEO You can argue that position all you like, but whether it is right or not, considering the above information I have given, is another story altogether.

AC Also, Pope Leo XIII in *Prov. Deus* states:

From the fact that we must take a position of strenuously defending the Sacred Scriptures it does not follow that we should maintain equally all the opinions expressed by individual Fathers and later by their interpreters in the act of declaring its meaning. In fact, in the case of the explanation of Scriptural passages which deal with physical questions, they held to the opinions of their time with the results that they perhaps did not always judge truthfully and stated things which are no longer approved today.

GEO By what things are these? The heliocentrists who read this passage from Leo assume he is talking about heliocentrism, but Leo doesn’t say that, does he? He could be talking about the size of a mustard seed or whether Saturn was a star (like Augustine believed), or any number of things. Unless he specifically says that he is referring to heliocentrism, you can’t make a case with it.

Geocentricity in the 17th c. Other matters in the 20th c.

AC You state:

The *Inquisition* of 1615 ... declared the position of Galileo to be scientifically false, and anti-Scriptural... Following this was a decree ...prohibiting various heretical works, and among them were those advocating the Copernican system.... and no pope has ever annulled the decrees of Paul V or Urban VIII. The only thing the Church has done is apologized for the treatment of Galileo, but with no reference to his science views.

The way you present matters above it sounds as if the Church has decrees still in force which declare Galileo's position anti-Scriptural and that advocating the heliocentric position as an opinion is prohibited. Instead, as I had recently pointed out, the decrees against Galileo and the Copernican system were annulled in the 1800's with the approval of Pius VII. Galileo's *Dialogue* was removed from the *Index* in the 1800's, and in that same century the Church decreed that one can advocate the opinion that the earth is mobile and the sun is immobile, in accordance with certain previous decrees.

=====

GEO The decrees against Copernicus and Galileo were not annulled. The Church still cannot allow anyone to teach, in the name of the Church, Copernicanism as a CERTAINTY. THAT is the decision that was never nullified. I have no problem if you want to say that someone can hold the opinion that the earth goes around the sun, but that is far different than saying the Church holds Copernicanism as a certainty.

=====

AC Also, you had stated that Paul V clearly approved the decision of the *Inquisition* against Galileo based on the fact that you say he was present at the session of that *Inquisition*. Previously I had quoted the view of a renowned Galileo scholar who insisted the Pope was not present at the session (this is not to say, however, that the Pope did not approve the decision of the *Inquisition*), without going into detail as to how he reached his conclusion. You seemed to dismiss his view saying that others have read the same documents he did , but they reached a different conclusion. However, Annabale Fantoli's view is based, I believe, on the recently discovered minutes of a weekly cardinals meeting which took place the day after the session of the *Inquisition* in question. Fantoli in his book provides the Latin text of the meeting, as well as an English translation of it. I believe it is from those minutes that one can see that the Pope had to be notified of what decision the *Inquisition* had reached against Galileo, thereby showing the Pope was not present at the session in question. Also, Fantoli draws the same conclusion based at the same time on some other document that I didn't look closely to see what it was.

=====

GEO Doesn't really make a difference. He had to approve the *Inquisition*'s findings, whether he was present or not present at the actual deliberations. Besides, Paul V is not your major problem, Urban VIII is, for he was both at the *Inquisition* [then as a cardinal] and approved of their decision, and refused, during his subsequent pontificate, to remove the ban, even until Galileo's death.

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What science is (& is not) about

AC Explain your statement “If gravity took 8.5 minutes to travel the 93 million miles, well, we wouldn’t be here to talk about it.” I don’t understand why the time involved for gravity to move from the sun to the earth would make a difference.

=====

GEO It makes a difference because the instantaneous gravitational reciprocity between the sun and the earth has been proven, that is, the earth reacts immediately to the sun’s gravity. There is no appreciable time interval, whereas light has been shown to travel the same distance in 8.5 minutes. Therefore, there is a contradiction in your theory of Relativity, if, as is well known, you believe that the fastest anything in the universe can travel is the speed of light.

=====

AC You also have complained several times that Newtonian physics does not explain what gravity “is”. This shows that your misunderstanding of science is so great that you do not even know what science IS. Science is the study of nature. The purpose is only to observe and to make sense of the observations. Science does not seek a higher understanding of things. The question of what gravity “is” is a philosophical question, not a scientific question. Science just tries to observe what gravity does. Scientists are happy with the explanation that gravity is the attraction between objects, because that is what they observe. To them, gravity is as gravity does.

=====

GEO Perhaps the “science” you’ve adopted “does not seek a higher understanding” and reserves gravity to a “philosophical question” and merely “observes what gravity does,” but not the science with which I am familiar. I think you make such conclusions because you simply don’t have an answer for the nature of gravity, and to avoid the embarrassment you are seeking to change the definition of science. But even granting for the sake of argument that your definition is correct, why are scientists still trying to find a physical cause for gravity? They’ve been working on the Graviton theory for about 50 years or more in order to have a physical cause for gravity (but with no success). Moreover, contrary to what you claim, science CANNOT “make sense of the observations” unless science knows what is behind the observations. If we were to take your proposition to its logical conclusion, then I would win the heliocentric/geocentric debate hands down, since what we OBSERVE is the sun going around the earth. But I’m sure you would be the first one to tell me that you don’t go strictly by what you observe, because appearances may be deceiving. Isn’t that what this whole debate is about?

=====

AC Does the aether provide an absolute frame of reference? If Relativity is invalid, then only one reference frame is the correct one against which all positions and velocities can be measured. It appears as aether, as pre-Relativity physicists thought, should be this “absolute frame of reference”. However, this presents a problem for your theory. Since aether is the absolute reference frame, if the stars are stationary with respect to the aether, then they are absolutely stationary. Furthermore, an absolute frame of reference cannot be said to move with respect to itself, so a moving aether would be self-contradictory in this case. If the aether seems to be rotating around the earth, then the earth must be rotating by definition.

=====

GEO No, the earth is the absolute frame of reference. If, as I am claiming, the earth doesn't move but the aether does, then obviously the aether is not absolute. It is only the medium which holds things in their places. According to Sagnac, Michelson-Gale, Miller and Ives, either the aether is moving around the earth or the earth is moving through the aether. They couldn't tell us which one was correct, but they DID tell us that aether existed. Thus, we're going to have to pick one as the absolute and one as moving. Unfortunately for science, they cannot tell us. That is where divine revelation comes in. It tells us that the earth is the absolute frame of reference, because it doesn't move.

AC But if the earth instead is the absolute frame of reference, then the stars and planets are moving, and stars infinitely far away are moving at infinite speeds. Our own sun is moving at 3.875 million miles per hour. This seems ridiculous, to my ears, and the aether, which permeates the entire universe, should obviously be the absolute reference frame. Of course, you can solve this problem with the second postulate of Special Relativity, which states that any frame of reference moving at a constant velocity can be a valid reference frame. Why not? You already use the Lense-Thirring theorem from General Relativity.

GEO I only use Lense-Thirring to show you that your own Relativity theory disproves Relativity's claim that the earth is moving against the fixed stars. As for your Special Relativity theory explaining the anomalies by claiming that any frame of reference can serve as a valid frame of reference, I'm not going to dispute that. Your theory must incorporate that definition. But whether it is right or not is another story altogether. As I said in some previous exchanges, an equation such as minus the square root of minus one equals one is the same as the square root of one equals one, but which of those two is correct? Only the second one is, because the first one is an imaginary number that does not exist. Analogously, Relativity may give you a mathematical model of what you observe, but you don't know whether it is really representing reality or not. And if Relativity is wrong, then the earth is not moving, as Einstein admitted to himself several times. It's as simple as that. Unfortunately for Einstein, he thought the Michelson-Morley experiment gave a null result, and thus he developed his whole theory of Relativity on a false premise (or maybe he did it intentionally, and thus it is not surprising to find no reference to either Sagnac or Michelson-Gale in Einstein's papers, as well as a concerted effort by Einstein and Shankland to discredit Miller's extensive work on aether).

As for the stars moving at tremendous speeds, I've already explained this in previous exchanges. It is the aether which is moving. The stars rotate around us because the aether rotates around us. If the aether is in Planck dimensions, then the math shows that it would have to rotate at that speed to keep its consistency. In fact, the aether's rotation explains one of the biggest anomalies in science today. I'm sure you are familiar with the conventional wisdom that in order for the universe to be oscillating there must be a certain amount of matter in the universe. But science realizes that there is less than 1% of the needed matter to support the Big-Bang theory. So, they've invented the matter. They claim that the universe is filled with 99% of matter we can't see, and they've assigned a name to it called Dark Matter. Unless they have this matter, then the universe should not be expanding but should have collapsed in on itself many years ago. Dark Matter sounds impressive, but anyone with a decent education knows this is just an escape from reality. When science is reduced to explaining anomalies by waving a magic wand to produce the

needed material, then we know that something is seriously wrong with its whole concept of the universe. In the aether universe, the material is there already. It doesn't collapse in on itself because the centrifugal force of a rotating universe counteracts the inward gravitational force.

=====

AC Why does the force of the aether depend on the masses of objects? The displacement of the aether, responsible for the force, would be equal to the VOLUMES of the objects, not the masses. How does the aether know how dense an object is?

=====

GEO Because aether permeates the object itself as well as the perimeter of the object. The difference between the two causes the specific tension that the object makes in the aether.

Laws of physics & geocentricity

AC This argument against geocentrism is a bit long, but please suffer through it just once. In order for the earth to be the center of the cosmos, you must first explain away Kepler's laws of planetary motion. Since those laws are wholly dictated by gravity, gravity's effects must also be discounted. The real challenge here will not be discounting any specific theory of gravity (Kepler himself died before Newton was born) but the EFFECTS of gravity.

=====

GEO The Geocentric system discounts neither Kepler's laws nor the law's of gravity.

=====

AC Johannes Kepler discovered 3 laws which, together, explained the motion, relative distances, and predictive positions of the planets. For his theory to be sound, Newton's later calculation of the gravitational force had to agree with his observations. It turns out that Kepler's laws describe the motion of the planets beautifully (even predicting Neptune's existence before it was discovered). Here's the problem then... In a geocentric universe, Kepler's Laws do not work, cannot work, but in our present solar system – THEY DO WORK.

=====

GEO No, all of Kepler's laws and all of Newton's laws work in the Geocentric system. If they did not work, there would not be a Geocentric system.

=====

AC Why can't these laws work in a geocentric universe? Because they rely on the gravitational force, and that force wreaks havoc with any geocentric model of the cosmos. (Again, Kepler had no name for this force, but recognized its existence and dealt instead with its effects on the planets.)

=====

GEO I don't know where you're getting the idea that the Geocentric system does not believe in gravity. There has never been anyone who has ever entertained that idea.

=====

AC Newton never discovered a physical law explaining gravity. He simply found a way to describe its effects without ever understanding what it was. Those effects are very real though, and cannot be discounted as subjective. Objects fall (on earth) at roughly 32 feet per second squared. When Einstein and others finally dethroned Newtonian physics they at last supplied an explanation for gravity, but whatever explanation you may accept, objects still fall here at 32 ft. per second per second.

=====

GEO They do the same in a Geocentric system.

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AC Unless you are prepared to disprove gravity, please address the following issue: The force we call gravity, regardless of our explanation or label for it, is driven by an object's mass.

=====

GEO You don't know that. If, as you admitted above, neither you nor Newton have an explanation for the nature of gravity, only its "effects," then how can you say that gravity is caused by an "object's mass"? Obviously, that is a contradiction. You have no idea what causes gravity. All you know is that objects attract one another. You don't know if the cause is in the object itself or in the environment the object is placed, or whether God just sprinkled pixie dust on them. Thus, if this issue about gravity is the basis of your argument, you've already defeated yourself.

=====

AC The sun's mass, being many times greater than the combined masses of all nine planets, their moons, the asteroids and surrounding dust, has a gravitational field proportionally larger than the rest of our solar system. Taken by itself, gravity demands that the sun be at the center of our solar system. Start off with the sun orbiting the earth, and gravity quickly alters the system as the planets radically change their orbits (due to the sun's enormous pull on them). Any system without the sun as the focus would be inherently unstable. The sun would soon take center stage.

=====

GEO No, because you've totally discounted the stars as the third and necessary component in this picture. The gravity caused by the billions of stars counterbalance the gravity of the sun, and therefore, the sun, even as large as it might be, does not need to be the foci of the ellipse. You should read the other exchanges to find out more about this. Your contentions variations of what has already been put forth by others and explained.

=====

AC If you discount this as a false problem, claiming that the orbits of the sun and the planets are fixed so that gravity does not affect them (as in the classic view where sun, planets, and stars are held in place by crystal spheres) then you would completely destroy my argument. . . except for three tiny things that you MUST explain away. . .

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GEO No, but the Geocentric theory adopts the aether as the medium in which the stars, the sun and the earth are placed. There is no need for crystal spheres. The tension caused in the

aether by the bodies mass creates the gravitational effects we observe, since the aether is always going to try to reach equilibrium. And according to Ernst Mach and Lense-Thirring, supported by Einstein himself, the gravitational effects of a rotating star system around a stationary earth are exactly the same as the gravitational effects of a rotating earth in a stationary star system.

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AC ...Kepler's laws of planetary motion. Yes, you are always free to say "Laws, what laws? I do not recognize Kepler's laws." But that would be a great disservice to reason, because Kepler's laws WORK. They DO predict planetary motion, and at the same time make a geocentric cosmos impossible. Here's why: 1) Kepler's 1st Law of Planetary Motion: A planet moves in an ellipse (with the Sun at one of the two foci). This law deals with a problem Kepler had when trying to describe the motions of the planets. Only an elliptical orbit can correctly describe these observed motions, and then only if the SUN is given a very special position – resting at one of the two foci (that is, imagine a circle with a dot at its center, now stretch the circle into an ellipse so that the dot stretches into a line. The two foci of an ellipse are the two end points of that imaginary line). If you try placing the earth at either focus, you will find predicting planetary motion (using Kepler's 1st law) an utterly hopeless task. This law is inconsistent with a geocentric view.

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GEO Already explained above.

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AC Kepler's 2nd Law of Planetary Motion: A Planet sweeps out equal areas in equal times. This law, restated, tells us that a planet in orbit changes speed in a very predictable way. Kepler derived this law through planetary observation. As a planet's orbit around the sun brings it closer to the sun, as MUST happen with an elliptical orbit, gravity pulls harder on the planet – making it speed up. Later, as the planet moves away from the sun's gravitational field, the sun's gravity tugs from behind and slows the planet down. All this happens at a very specific, and measurable, rate. This law DOES describe the speed changes of the planets, in perfect harmony with what we now know of gravity. Why would planets in fixed orbits around a geocentric earth ever change speed? And even if they did, why would their rates of change be in exact accordance with the effects of a gravitational force that emanates from the sun (and only IF that sun is located at a focal point of an elliptical orbit)?

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GEO Again, the effects you have in the heliocentric system are the same in the Geocentric system. The only difference is that in our system the stars are rotating around a stationary earth while in your system the earth rotates against a stationary star system.

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AC Kepler's 3rd Law of Planetary Motion: It states that the squares of the periods of the planets (the time for them to complete one orbit) are proportional to the cubes of their average distances from the sun. Again, restated, this law states that the farther a planet is from the sun (or whatever it's orbiting) the more slowly it moves. But it says something else too – that if you know the distance between any planet and the object it orbits, you can easily calculate how many days are in that planet's year. The earth takes one earth year (365 days) to orbit the sun. In a geocentric model, the sun takes that same 365 days to orbit the earth. Fine.

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GEO No, it's a little more complicated than that. The sun revolves around the earth once per day. The sun also moves around the earth in a precession once per year, as well as a change in plane once per year, in order to create the seasons.

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AC But then, in a geocentric cosmos wouldn't all the planet's have years based on their distance from the EARTH, not the sun? They would have to, wouldn't they, if Kepler's laws were valid?

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GEO No, the planets revolve around the sun in the Geocentric system just as they do in the Heliocentric system. It takes the same time for both. The only difference is that in the Geocentric system, the sun and its planets revolve around the earth once per day.

=====

AC Problem is. . . the math doesn't work out that way. It's easy to tell how long a year is for any planet. Just wait for it to get back to the same place again, or count the seasonal changes of the Martian polar caps as they shrink and re-grow each Martian year. There are many ways to tell. All the planets in the solar system agree with Kepler's 3rd law. They all take a specific number of days to make one orbit, in exact accordance with the 3rd law, just as they should if they are orbiting the sun (elliptical orbits mind you, with the sun at one focus). These calculations are based on the planets' distances from the sun, and the math all works out.

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GEO As I said above, the math is the same for both systems. The Martian year is the same in both systems. That's why this is a controversy, because both systems work.

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AC None of the planets would have years lasting the lengths they do if our universe was geocentric. The earth is just about 93 million miles from the sun. That's not much compared to the infinite beauty of the night sky, but it's plenty to prove that Kepler's 3rd law wouldn't work if the planets orbited the earth. The numbers just don't add up (unless of course, you turn back to the sun-centric view and Kepler's three elegant laws). In the end, you will find it impossible to explain the length of the year for all nine planets without dismissing Kepler's laws, and the gravitational foundation they were built on. And even if you do dismiss gravity (despite its constant presence in your own life) you would then have to explain to me how Kepler's laws always work out perfectly in every case (since those laws depend on gravity's validity in the first place, including its demand for a sun-centered solar system).

Put another way, Kepler's laws of planetary motion MUST be invalid in a geocentric cosmos. They depend completely on the sun's gravitational pull from a sun-centric position. And yet ALL observations of the planets (since Kepler's discovery about 400 years ago) support Kepler, including the length of every planet's year.

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GEO I think you'll have to go back to the drawing board. You've made a lot of assumptions.

Model commonly accepted model for geocentricity

AC I offer the following brief RealVideo clip: *Kepler Finds Earth's Orbit Around the Sun*. It is a clip from a program titled *The Mechanical Universe – Kepler's Three Laws*, and is copyright 1985 by the California Institute of Technology. Direct proof: direct – yes, the results of the computations apparently lead directly to the conclusion that the Earth must orbit the sun, and not the other way around. Observable – yes, Kepler reached his conclusion by observation of the orbit of Mars, and the relative positions of the Earth and the Sun. Physical – yes, the conclusion was reached by direct observation of the physical orbit of Mars. Natural – yes, the conclusion was reached by direct observation of the natural physical orbit of Mars. Repeatable – yes, the experiment would be repeatable today following the same procedure. Unambiguous – yes, I believe the video shows the results in an unambiguous way that simply cannot be explained in a way compatible with geocentrism. Comprehensive – well you got me there, if you want an out, as I am not actually providing any proof to you, but rather a graphic demonstration that is the apparent result of the proof. To qualify for comprehensive proof, I would have to provide you with the actual computations and logic that Kepler used, in a way you could understand and possibly refute, and I am admittedly not doing that. It is quite likely that neither you nor I could fathom the computations or complex geometry in any case.

I feel that this clip provides very strong evidence that the proof you require does exist, and perhaps someone who is an astrophysicist will be able to simplify the explanation enough to confirm the proof to you, though you may still be able to come up with some fantastic scenario that you feel is able to make it conform to geocentrism.

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GEO Your diagrams don't at all prove your contention. First, you might want to read up on the relationship between Kepler and Tycho Brahe. You will find that it was Brahe who made all the meticulous chartings of the planets, not Kepler. Kepler actually confiscated Brahe's work after Brahe died. While Brahe was alive, he was using those very calculations to show that Geocentrism was the correct model. Before he died, Brahe insisted that Kepler use the calculations to continue the Geocentric position. Kepler, however, was influenced by other things. Since he was heavily into the occult, as was his mother, he was searching for "musical harmony" among the heavenly bodies. It was his opinion that a solar centered system coincided with that "musical harmony" as opposed to a geo-centered system. As such, Kepler's choice had little to do with evidence disproving the Geocentrism. The fact still remains that both Heliocentrism and Geocentrism work, mathematically and physically. Kepler's findings do nothing to disprove that fact.

I have already dealt with Kepler's claims in previous exchanges. I suggest that you consult them. The first is at www.catholicintl.com/epologetics/geo25.html .

You wrote:

Now the following can be seen above: Observations are made on the day that Mars returns to the exact same point in its orbit (here when it crosses the yellow line at the right. On those dates both the Sun and Mars are at the same fixed relative points, with the same distance between them. The Earth's position changes relative to both the Sun and Mars, tracing out an orbit around the Sun (proving heliocentrism).

This is nothing more than the retrograde motion of Mars as seen from earth. If you go to our posting on this subject you will see how retrograde motion is explained in the Geocentric system, which is at www.catholicintl.com/epologetics/geo18.html.

You then write:

Other points worth noting. Venus and Mercury are never observed very far from the Sun. Venus is always observed within 46° and Mercury within 28°, so they are only observed in the early morning or early evening (they basically rise and set with the sun). They are never seen on the opposite side of the earth from the sun. Venus and Mercury exhibit the full range of phases, like the moon, but the other planets do not. The reason for this is that Venus and Mercury have orbits closer to the Sun than the Earth (inferior orbits), the other planets have orbits farther away than the Earth (superior orbits).

Venus and Mercury both exhibit a full / gibbous phase when observed near the Sun, but farthest from the Earth. If they orbited the Earth (geocentric), we would never see a full phase when they are near the Sun. This proves that Venus and Mercury orbit the Sun, and not the Earth.

The problem with this is that you are working with an incorrect model of the Geocentric system. In the Tychonic system, which we are using, all the planets orbit the sun, not the earth. It is the sun that orbits the earth, and carries the planets along with it. Thus, the diagram you showed which has Venus orbiting the earth is wrong, and that is why the model doesn't work for you. As for the Geocentric explanation of the phases of Venus, it can be explained both from a Ptolemaic system and a Tychonic system.

First the Ptolemaic system. Galileo had claimed that the Ptolemaic system could not account for the phases of Venus or Mercury. Actually, Galileo was partially correct. If one uses circular orbits for Venus and Mercury, the phases of the two planets do not appear. But if one uses elliptical orbits, as even Kepler did for the heliocentric system, then the phases of Venus and Mercury can be easily accounted for in the Ptolemaic system. Even the Jesuit astronomers who were challenging Galileo's findings knew this to be the case, and thus they submitted their evidence to the *Inquisition*, which also concluded that Galileo had no proof that only the heliocentric system worked. In fact, the only thing that Galileo's findings showed was that the epicycles in the Ptolemaic system were much larger than had previously been suspected.

As for the Tychonic model of Geocentrism, if one uses the same elliptical orbits of Kepler, the result is that two epicycles in the Ptolemaic system will translate into one ellipse, per planet, in the Tychonic system. Thus, around the sun, Mercury and Venus would each have a perigee and an apogee, and each locus of points along that polarity would show the respective phases of Mercury and Venus, as viewed from earth.

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AC I presumed that you were defending a pure Geocentric system, in which all planets orbited a stationary Earth as proposed by Aristotle and Ptolemy. However my presumption was incorrect. As he states above, he is defending a system in which all planets but the Earth do orbit the Sun. Tycho Brahe proposed such a system. Here are links to pages that demonstrate the various systems.

The Universe of Aristotle and Ptolemy. An impressive online animated simulation of three systems: Ptolemy (Geocentric), Brahe (Geocentric), and Copernicus (Heliocentric). Go to www.jove.geol.niu.edu/faculty/stoddard/JAVA/ptolemy.html and then "Conduct another experiment"

Again, at the following web site you can, run a simulation:

<http://www.astroarts.com/simulation/cometary-orbit.php>

1. Enter 55P in the “Object Name” box.
2. Press “Search” button.
3. Press “Show Orbit” button.
4. Run the simulation as before, but in the “Center” drop down menu, select “Earth” rather than “Sun”.

Note that the Earth appears to remain stationary, and the Sun and all the other planets appear to revolve around the Earth. Note you can toggle the “Center” menu to any planet, and you do not change any of the mechanics of the simulation, you only change the presentation of the graphic, and artificially center everything on the selected planet. This is basically a matter of perception. You can center everything on the Earth, or Mars, or Jupiter for that matter, and the whole universe is presented as revolving around the selected center, but nothing else changes (in particular, no epicycles are needed to introduce retrograde motion).

So I think this simulation shows rather effectively, whether the Earth is in the center, or the Sun is at the center, can be purely a matter of perception, and not physics. So it is quite possible for one person to perceive the Earth as orbiting the Sun, and someone else to perceive the whole universe as orbiting the Earth, and yet, hard as it may be to believe, both can be quite “right” at the same time, and neither can “prove” the other wrong, because everything else is absolutely identical for both of them.

R Sungenis vs J L Case

CASE The strength of our senses & logic (logic being the strongest of the two, for sense data is useless without our logic) in witnessing a demonstration are mentioned by St. Robert Bellarmine: “we would rather have to say that we did not understand [passages of Scripture] than to say that something was false which has been demonstrated”. Demonstration gives us certain knowledge. We KNOW what we sense, and our logic forms the conclusion that we KNOW things are true because of the facts. Such is so strong that we must give precedence to it when even the literal comprehension of scripture is contrary. This doesn’t put science above faith. Faith supercedes science. Faith is not contrary to reason but above it. St. Robert is talking about when the demonstration is actual CONTRARY to the literal comprehension of a passage of Scripture.

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SUNGENIS All granted, but St. Robert was not saying this as if science had demonstrated heliocentrism, but that it had NOT demonstrated it. The context of the paragraph (which you did not cite) says that very thing.

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CASE I did not cite it because it was not to my point. The point which you conceded by your saying, “all granted”, is that Catholicism allows for the possibility that demonstration CAN prove that what is literal in Scripture can be instead taken non-literally merely by knowledge of

natural laws of science. But it can only do so where that literal interpretation is not intrinsically connected to faith. Whether the sun, or the earth, moves is not intrinsically connected to faith. If it WERE intrinsically connected with faith, St. Robert would have sinned against faith by admitting the POSSIBILITY of demonstration. Those people who mistakenly handle this subject as though it were “of faith”, will naturally attack “demonstration” in order to put literal interpretation of Scripture above demonstration. But as we see from St. Robert, natural demonstration is indeed ABOVE the literal interpretation of Scripture when the point is not “of faith”. And the Church has long said that this subject is not intrinsically connected to faith.

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SUNGENIS I don't know anywhere the Catholic Church has stated that this subject is not connected to faith. If you have such an official statement from the Church, then you ought to produce it.

One of the last official decrees from the Church we have is the decree of Alexander VII, which he wrote in a papal bull (*Speculatores domus Israel*), which was attached to the *Index of Forbidden Books*, stating that he condemned “all books which affirm the motion of the earth,” binding the consciences of the faithful. In fact, one Catholic author, William W. Roberts, in his tome *The Pontifical Decrees against the Doctrine of the Earth's Movement* (1885), which was backed by many prelates of his day, argues that the Church committed its infallibility to those papal condemnations. There has been no pope or council since who has stated that Alexander VII was wrong, or has rescinded his judgment against the motion of the earth, or stated that Copernicanism is a scientific fact. Unless there is one, then the decree stands as is, regardless whether most Catholics recognize it today or not.

As for Bellarmine, he is very relevant to this issue, since as head of the Sacred Congregation, he wrote in his letter to Galileo:

“...speaking hypothetically, and not absolutely, as I have always believed Copernicus spoke. for to say that, assuming the earth moves and the sun stands still, all the appearances are saved better than with eccentrics and epicycles, is to speak well; there is no danger in this, and it is sufficient for mathematicians. But to want to affirm that the sun really is fixed in the center of the heavens and only revolves around itself without traveling from east to west, and that the earth is situated in the third sphere and revolves with great speed around the sun, IS A VERY DANGEROUS THING, not only by irritating all the philosophers and scholastic theologians, but also by injuring our holy faith and rendering the Holy Scriptures false.”

So you see, that Bellarmine allowed one to say that Copernicanism “appeared” to work, but he did not allow one to say that Copernicanism went beyond appearance into FACT.

As for the “demonstration,” Bellarmine further stated to Galileo:

“I say that if there were a true demonstration that the sun was in the center of the universe and the earth in the third sphere, and that the sun did not travel around the earth but the earth circled the sun, then it would be necessary to proceed with great caution in explaining the passages of Scripture which seemed contrary...BUT I DO NOT BELIEVE THAT THERE IS ANY SUCH DEMONSTRATION; NONE HAS BEEN SHOWN TO ME. It is not the same thing to show that the APPEARANCES are saved by assuming that the sun is at the center and the earth is in the heavens, as it is to demonstrate that the sun REALLY is in the center and the earth is in the

heavens.”

This is the same argument I am giving you. If you can demonstrate that heliocentrism is the ACTUAL model of our solar system and not merely something that saves the APPEARANCES of what we see in the sky, then you have won this argument, and I will retract everything I’ve ever said about this subject. But you haven’t done so.

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CASE I have researched and found that visual “positioning” models have been made for BOTH the heliocentric model AND the geocentric model. Both models appear to show the same relative positioning depending upon point of view. Both therefore can predict the positioning of the planets in relation to each other for a future date. Of course, all this does so far is say that we have no weight to believe in one model over the other, EXCEPT for the fact that when we bring Scripture into the picture, we must (aside from actual Church allowance to the contrary) believe that the earth is motionless: both “positioning” models on a scale would be equal, but when the Scripture is added to the geocentric scale, the weight of that position is an unmistakable (again, when Church permission is excluded from consideration here). However, a visual “positioning” model is not a true model. It takes no account of the physical laws of God’s created nature which is so orderly and predictable that we can study it and develop formulae of ratios and proportions such as to predict how things will react according to those laws of nature. This is science – studying the order of God’s creation. The “positioning” model does not take into consideration proportions of mass, velocities, momentum, gravitational attraction, magnetics or friction. Mere positioning is not a true demonstration, but it is a start. It is a demonstrable fact of God’s creation that objects will continue at a constant rate of velocity in a straight line unless acted upon by another force. The object’s momentum is a product of its velocity and mass. The greater either one of those two, the greater the momentum. Depending upon the angle of an outside force and the strength of that outside force will depend upon acceleration/deceleration, the angle it makes to diverge from its straight path. This is so orderly that upon study man has devised formulas that work to predict the reactions and motions by applying the mathematical quantities. There is such a relationship that the Force=Mass x Velocity. Knowing any two of them can automatically give us certainty of the third value. (Velocity=Distance x Time) and (Mass=Density x Volume).

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SUNGENIS Granted, but the mathematics is only a numerical representation of what is supposed to be transpiring, but it is not a PHYSICAL description of what is transpiring. Equations do not necessarily represent reality. Equations only put in proportion one set of values in relation to another. Here’s a crude analogy. If, for example, I were in a sealed room, and you were outside the room, and I made a banging noise in the room every five seconds that you could hear very faintly but could not see, then mathematically you could say that I made 12 noises per minute, which would be accurate. But the math doesn’t tell you what is making the noise. The bang I am making could be anything from hammering a piece of metal to playing a base drum to setting off a small firecracker. This analogy is important since, for all Newton’s formulas, he couldn’t tell us WHY gravity existed, or what made it act the way it did. All he did was tell us, at least with the measurements available then, how gravity affected different objects in mathematical proportions.

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CASE You are denying the very essence of “demonstration”. Demonstration PREDICTS the future through formula. If a formula does not represent reality, then it won’t PREDICT and therefore is not a valid formula. By I am not talking about possibilities of invalid formulae and I don’t know why you are bringing it up here. I am talking of VALID formulae. The formulae which I cited are valid because they can PREDICT the future of movement and directions. This is definitively “demonstration”. And the predictions are true and can be repeated. Otherwise you would have to say it involved a divine prophecy or working of the Devil, on-tap. But it is based on God’s laws of nature and man has engineered intricate and immense things with these, and they come out as planned through the formulae. As long as the EFFECTS of gravity on velocity and direction can be PREDICTED at will, man does not need to know why it exists. You are starting off with faulty premises from the start.

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SUNGENIS I’m sorry to have to disappoint you, but your reasoning simply does not answer the question at issue. The question at issue is not which model’s math works (heliocentrism or geocentrism), since it is a fact that they BOTH work. I wouldn’t be here arguing the issue if the geocentric math didn’t work. If the math of each was different, then you would have a valid point. Both must have the precise mathematical result to explain what they see in the sky.

Let me give you another illustration to prove the point. The Newtonian system of gravity uses the inverse square law to calculate the effect of gravity between two objects. The Newtonian system, for lack of a better explanation, assumes that the force of gravity emanates from the objects themselves. Conversely, the Le Sagean system uses the same inverse square law when it calculates the force between the objects, but it maintains that gravity is not inherent in the object itself, but is caused when the objects are placed in the sea of ultramundane corpuscles that pervade the universe. When objects are placed near each other, there is an imbalance of corpuscles between them. This causes the corpuscles on the far side of each object to push against the object, and thus move them closer together. If you are not familiar with this model, I suggest you pick up a copy of the book Pushing Gravity, which just came out.

The point of this illustration is to show you that there are two entirely different models to explain the physical nature of gravity, and both use the same mathematical formula (the inverse square law) and come up with the same mathematical results and predictions. But in the case you and I are working on, we aren’t as interested in the math, since we know both our systems must have the same mathematical results. Rather, we are more interested in the MODEL behind the math. But as you can see, the math does not prove the model. The math only gives us a proportional relation of how one object is being effected by another. When you add to this Einstein’s theory of gravity, you have three working models from which to choose.

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CASE Now we know the positioning of the planets in relation to themselves and to the sun. That is why we come up with two positioning models. Actually, a separate relative positioning model can be made for EACH orbiting object in the solar system. 1. Sun center – all planets revolve around it. 2. Mercury center – sun revolves around it while planets revolve around the sun. 3. Venus center – sun revolves around it while planets revolve around the sun. 4. Earth center – sun revolves around it while planets revolve around the sun. 5. Mars center – sun revolves around it while planets revolve around the sun. Etc. There is one created universe with

the same physical laws of nature, and they must be consistent within creation. A theory which contradicts a physical law is demonstrated to be a false theory, and thus not a theory anymore, but a falsity. Now, all matter has a gravitational pull on other matter. The greater the mass, the greater the gravitational pull. Gravitational pull is undiscernible when the mass is very small. The only time we as humans experience it noticeably is because we are on a planet that is so massive that it attracts all objects.

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SUNGENIS Not necessarily so. This is precisely why I gave the above analogy. If neither Newton nor anyone else has been able to tell us what gravity IS, how do you know it is a “pull”? All you know is that objects move in the direction of the center of the earth, but you don’t know if something is pulling the object there or pushing the object there.

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CASE I already showed your last premise is an error. The analogy is useless here. We don’t need to know what gravity IS. We know all matter has gravity in increased proportion to increasing mass. We only need to be able to PREDICT, and when it comes to be repeatedly, the formula is correct. Experiments on earth can predict the effects of gravity, that is how we know. This is demonstration.

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SUNGENIS It is a demonstration only of the EFFECTS of gravity, but it is not a demonstration of the physical model of gravity. And since, as I stated above, you and I are only interested in which physical model is correct (heliocentrism or geocentrism), then the math is moot at this point. In fact, even if we were to use math in some indirect way to help prove our case, I have more on my side than you do on yours. For example, NASA sends all its rockets and satellites up using a fixed-earth model of the solar system. All their math is based on a fixed-earth model. Granted, they can convert the math into a heliocentric model, but it is quite cumbersome, and thus they don’t make a practice of it. As it stands, of the two, the geocentric is the preferred.

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CASE The moon is smaller than the earth and the earth has more mass. This is why the moon, being smaller, revolves around the earth and not *vice versa*.

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SUNGENIS What “law” of physics states that a smaller object must rotate around a larger object? Read below.

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CASE The law of gravity and the interaction of two masses for orbits. I will concede it is “possible” because I cannot say I have studied all there is, but the probability is so very low because it would require such ideal circumstances that nature does not provide. The common occurrence is small around large because the probability is very high for a temporary orbit to be formed. (We cannot say permanent orbit.) My main point really is that large does not revolve around the smaller.

=====

SUNGENIS As long as you admit that it is possible, regardless of the fact that you assume the obverse to be the norm, then you really have no way of using your premise to deny geocentrism. In fact, my whole contention is that the earth is unique among all the heavenly bodies, for it is the place where man was given dominion and the place where the Incarnation would take place. If the earth is indeed the center of the universe, then obviously, any heavenly body outside of the earth must be moving against a central, and thus, stationary earth. I wouldn't expect this for any other heavenly object, since none of them can claim to be the center of the universe. (Obviously, I am rejecting the modern idea that there is no center to the universe).

But to give a physical explanation (since we are focusing on physical models in this discussion) of the earth–stationary/sun–revolving system, I pointed out in my last post that the star system which encircles the earth creates its own force. This force acts upon the sun in such a way that causes the sun to remain in its orbit around the earth. Since the combined force of the stars is going to be greater than the sun, then naturally, the sun is the inferior object in this relationship. The sun is going to do what it is forced to do by the stars. As it stands, the sun will be forced to remain embedded at a distance of 93 million miles from earth, and rotate around the earth each day, along with the rest of the stars. In this scenario, even your insistence of the “larger body controlling the smaller body” is satisfied, since the stars are controlling the movement of the sun, and the earth is merely the pivot point for this relationship.

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CASE The moon has a velocity parallel (tangential) to the earth, but because of the earth's gravitational pull it takes it off of its straight path making it fall at an angle. While it decelerates its parallel speed it correspondingly accelerates towards the earth. There is such a perfect equilibrium that it falls always missing and going around the earth. This is an orbit. Not so easy naturally to attain such a equilibrium but in God's designs it was founded. There is nothing miraculous about it.

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SUNGENIS Yes, I agree God designed it to orbit, but you haven't proven that the orbit is caused, as you say, by the “earth's gravitational pull.” You haven't even explained what gravity is in order to make such a proposition. All you know is that the moon goes around the earth.

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CASE Orbits have been proven to be established by the gravitational attraction of all that has mass with their respective velocities and directions. Again, you don't need to know what it is, only what it does and whether you can PREDICT by formulas. I get the feeling that you think orbits are some miracle or mystical phenomena that could never follow any formula except the direct intervention and sustainment of God. But the physical laws we study on earth are the physical laws of all creation. You seem to be implying that there are entirely other laws out there. St. Robert Bellarmine allowed for earthly demonstration to prove otherwise; you seem to create imaginary things you say are hypothetically and gratuitously “possible” without any basis other than to try to keep Scripture literal. That is not the mind of the Church. Man has explored outer space and knows it is a virtual vacuum – empty space. You are trying to suggest the moon is placed in a fixed orbit by God and circles without any regard to the forces of gravity and

inertia. That is contrary to reason because it is contrary to demonstration.

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SUNGENIS No, you are totally misunderstanding me, or perhaps trying to make it look to your audience that I believe in magic and superstition. Far be it from me to engage in such folly. As you noted in my previous paragraphs, all my explanations are based on science. The problem is that you keep assuming that YOUR science is the only valid science. If someone has an alternate theory of how things operate, scientifically, you have a hard time accepting such possibilities. But there is one thing I've learned about science, Mr. Case, and that is that science keeps overturning its own theories, year after year. The more they discover, the more they find out what they don't know.

You can speak about "gravitational attraction" as establishing orbits and I won't argue with you. But unless you can tell me how your "gravitational attraction" discounts the "gravitation attraction" in a geocentric system, then you're not going to get very far. Every force and movement you explain in a heliocentric system can be explained, mathematically and scientifically, in a geocentric system.

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CASE Scientists have seen observable and repeatable proportions to explain an orbit. Beyond the other characteristics of the aforementioned moving body, the factors of the mass of the earth (the amount of gravitational force depends on it), the distance of the object's orbit away from the earth, and the speed are crucial to whether or not it stays in orbit, plunges to the earth, or flies out into outer space once again in a straight path. If the moon's mass changes, it would upset that equilibrium. If the mass of the moon substantially increased, it would have too much momentum at that height and speed for the earth to attract it enough.....and it would fly into outer space. If the moon's mass were to substantially decrease at that speed and distance, the momentum for missing the earth would not be there sufficiently and it would spiral around the earth until it crashed into it.

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SUNGENIS Actually, the moon is continually moving away from the earth in its orbit, a few centimeters per year. In fact, if it has moved in the same proportions we have observed it moving away for all time, then this earth could not be more than a 100,000 thousand years old, for the moon would have been off into outer space.

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CASE That is why orbits aren't permanent, as I said before. There are so many changing factors involved that slowly degrade the orbits. But the orbits themselves can be predicted by formulae nonetheless, and the mass, velocity, distance all fit. The degradation shows that God has set the moon within laws of His physical universe, and the degradation of orbit is due to sporadic slight forces as come from elsewhere in the relative vicinity of the universe.

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SUNGENIS No comment.

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CASE This goes the same with the other characteristics of the formula. If the moon were exactly the same in all respects but were to be moved farther away from the earth's surface, the strength of the earth would be less at a greater distance and could not have a hold on the moon's momentum and it would fly into outer space. There is such an interrelationship between the masses of the two bodies, the distance and speed, that any one can throw off the balance and there will be no possibility of an orbit. The formulas have been tested. Man puts satellites in orbit around the earth based upon this formula. It works, and the laws of nature are solid.

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SUNGENIS Even that has its problems. Have you ever heard of an orbit decaying? Why does it decay? Because there are net external forces which act upon the object. Hence, the same "laws" of force and inertia you claim keep an object orbiting also cause an object to fall from that orbit. What you then have to explain is how the moon, or even the planets around the sun, can keep their orbits being that they are constantly influenced by unpredictable forces. Those forces include anything from the intermittent gravitational effect of the planets upon one another (which will be different effects depending on the position of the planet) to the bombardment of cosmic particles. So with all these forces acting upon the moon, what keeps it in its pristine orbit around the earth?

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CASE As you even said before the moon's orbit is SLOWLY decaying – so why say "pristine orbit"? No, it is temporary and sufficient. As I said, there are many changing factors. They are so minuscule compared to the mass of the bodies in question that they do not affect substantial orbit until it gets to a certain point of degradation. God may, in His designs, have certain comets periodically come nearby to help retain orbits for a longer time. The universe is perfect clockwork, but you cannot make something mystical out of it and flaunt demonstrable physical laws just because you want a literal interpretation of Scripture. It is not coincidence that orbital science works in its formula. The formula for orbits work, and you are unreasonably using the existence of extraneous minuscule forces to try to say the formulas don't work. That is a fallacy.

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SUNGENIS As I have shown, I am not "making something mystical out of it and flaunting demonstrable physical laws just because I want a literal interpretation of Scripture." I am using the same gravitational "laws" that you are using. The only thing different is where we place the bodies that are gravitationally interacting with each other.

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CASE This formula must apply equally to ALL bodies in our solar system. Mass, momentum, distance, direction, gravitational pull, etc, must all apply to every body at the same time. Both on earth and in outer space there are the same physical laws and principles of nature. The sun is 330,000 times as massive as the earth. It is utterly absurd to say that the sun could be in orbit around the earth.

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SUNGENIS First of all, you haven't proved that a larger body cannot orbit a smaller body. You can say it's "absurd" all you want, but that doesn't prove anything. Second, how do you

know the sun is 330,000 times the mass of the earth? You don't. All you know is that, according to Newton's laws (laws which you haven't shown me necessarily represent reality), dictate to you that the sun must be that large.

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CASE It seems that you doubt almost all commonly accepted fundamentals of scientific laws, and that I would have to reinvent the wheel and re-prove to you each and every one before I use it as a premise. That itself is absurd. The mere PROVEN formulas of mass and vectors of momentum force, and the forces that are needed to change inertia are obvious. You don't need to know the exact difference in size, an approximation still shows the obvious effects. Scientists are quite certain based on lots of different data how big the sun is and how massive. But you only need an approximation because its size is immense. The thought of a sun so massive, and SO quickly, circling the earth is absurdly contrary to ordinary experience and demonstration of inertia in creation. It would also necessarily mean the force is centered FROM the earth, but such an immense force as to do that would have necessarily pulled the moon to itself immediately. But it doesn't.

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SUNGENIS No, as I stated above, the earth is only a pivot point. The stars, which are dispersed evenly over the entire universal sphere, are what control the balance of gravity, not the earth. As I said in my last post, your heliocentric theory already admits to the fact that the sun must move against these stars to the tune of 500,000 miles per hour. Thus you admit that the sun is the inferior object when compared to the combined force of the stars. I'm saying the same thing. The only difference is that I'm placing the sun in between the earth and the stars, and you are placing the earth in between the sun and the stars. Both our systems work out mathematically and scientifically, but they are, indeed, different models, and that is solely what this discussion is about.

In fact, let me offer, on a scientific basis, how the geocentric model accounts for some of the anomalies you have in the heliocentric model. For example, it has been long known in the heliocentric model that there is simply not enough matter in the universe to account for what is theorized regarding the "expanding or contracting universe." So what does your science do? Well, they invent a form of matter called "Dark Matter," which they say composes 99% of the needed matter in the universe. Why call it "Dark Matter"? Simply because no one has detected its existence, yet the theory says it has to be there in order to support the expanding/contracting universe theory. Well, let's just say I find that highly "unscientific," Mr. Case. It is simply another case of science using a fudge factor to explain something they don't know too much about. What does my science do? Well, we don't have a problem with the universe collapsing in on itself, since a star system that rotates once per day at a specific radius from the earth will create the needed centrifugal force to keep the stars in their places, without having them fly off or collapse in on themselves. The math of this model has been worked out precisely.

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CASE That would be saying that the earth has such a force on the sun that it makes it go off its straight path towards it and that the sun keeps falling towards it always missing and staying in orbit. It is to say that the mass of the sun is held as if on a string by the earth and swung about itself. Considering the mass ALONE, at a smallest possible speed for the sun, the earth could not

hold it in orbit, and when you add the distance and the great speed of the sun it is an utter absurdity.

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SUNGENIS Not necessarily. That is only how it would work in YOUR system of “pulls” instead of “pushes,” but you haven’t proved that gravity is a “pull.” Until you explain what gravity IS, you have no basis to make such claims.

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CASE It has been proven by demonstration. It is mutual attraction of matter. If the sun were so attracted to falling towards the earth, it would also tend to fall towards all the other planets...and it doesn’t. Because of mass, inertia and momentum, the smaller falls towards the larger. The earth’s moon does so, all the other planets do so towards the sun, and all the planets have smaller moons that fall towards their own planets. All the observable orbits fit this logical observation.

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SUNGENIS As I said above, not only have you not proven this to be the case, but you haven’t explained, from your own system, how the differing forces from the same planet upon the earth or the moon do not alter their orbits. In fact, your “laws” actually get in the way of having the same orbits year after year. You have to grapple with the fact that no matter what intermittent and unpredictable planetary forces act upon the moon and earth, they always maintain the same orbit. How is that possible in a system, such as yours, which depends only on the forces of gravity of the smaller object falling toward the larger object? As you can see, the problem with your system is that it is a theoretical model of one sun and one planet obeying Newton’s math of $F=ma$, but you forgot that you have eight other planets that also put forces upon the earth, as well as the other cosmic forces in space, and from the stars themselves. In short, Mr. Case, it is all very complicated, and no one is quite sure how all the pieces of the puzzle fit together. Scientists have tried to calculate how all these forces interact, but it is a virtual impossibility. Once they put in more than three bodies in motion, even the highest math can’t figure out how the bodies will interact with one another. And this is especially true since they don’t even know what gravity IS in order to explain how the forces are interacting with one another.

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CASE Well, again, you don’t need to know what gravity is, just its predictable effects and relationships. A little boy doesn’t understand inertia, but he knows that trying to slow down a tank is different than slowing down a skooter. Don’t say they maintain the same orbits, when you already admit that they degrade slightly.

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SUNGENIS I only mentioned the “degrading” to show that the Big Bang cosmology of a 13.5 billion year old universe with a 4.5 billion year old solar system associated with heliocentrism has a big problem, since if the degradation of orbit were to be calculated out, **the** solar system could not be more than 100,000 years old. There is a good book you might want to read on this subject. It is Newton’s Clock: Chaos in the Solar System, by Ivars Peterson.

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CASE Another big error you fall into is this idea that such small bodies exert more than negligible attraction across such vast distances in the universe. Because of the momentum of earth, venus or mars have negligible effect on the orbit of the earth, and most definitely God synchronized even these negligible forces to cross at certain times to maintain balance enough for the end of the world. Even solar flares can serve a balancing effect. God creates a perfect ecosystem.

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SUNGENIS Yes, I agree. It is the perfect ecosystem. But then that just forces you to include the stars and everything else in the solar system into your “gravitational” formulas. Previously it seemed as if you were trying to treat the earth-moon or earth-sun as independent systems to prove your point about “smaller bodies having to rotate around larger bodies.” If you agree that no system is isolated from any other system, then you must agree that there is a system which can, by mathematics and science, position the sun between the earth and the stars (i.e., geocentrism), and have it obey all the laws you deem necessary.

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CASE The geocentric theory says there is one BIG exception – the sun falls towards the earth and kept in orbit by the pull of the earth.

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SUNGENIS No, because we don’t necessarily view gravity as a “pull.”

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CASE It is certainly a mutual attraction of matter. Magnetics can push if both bodies have magnetics and are close enough, and positioned. But both forces don’t extend very far. We know the weakness of the earth’s magnetic force.

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SUNGENIS Yes, it is “certainly a mutual attraction of matter,” but you still don’t know whether the matter is pulled together or pushed together, and no amount of mathematics is ever going to give you that answer, since the math for both is the same. Moreover, this dilemma can’t be explained by magnetism, since even your science asserts that gravity and magnetism are two entirely different things.

But let me pursue this just a bit further. Do you know what causes magnetism, Mr. Case? Or do you know why magnets only attract iron and nickel but not any other metal? I dare say you don’t. No one does. It’s as mysterious as gravity. All the scientist can do is measure the force a particular magnet gives off, and he assigns the name “Gauss” to it, but he doesn’t know what makes it do what it does.

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CASE In all the observable positioning models listed above, you can punch in the data for why all the planets orbit the sun at one time, and they all fit perfectly to the formula as far as proportion of mass, size, speed and distance. But as soon as you make an exception for any single planet with the very same data and punch it in as though ONLY the sun revolves around

it...it becomes such an obvious absurdity to the demonstrable laws of mass, momentum and gravitational pull, that we know certainly that the sun cannot revolve around any single planet within that same system where that same formula is applied. Since the force of gravity increases in some proportion to its mass – picture a giant **elephant 10 stories high and a human being** holding it by a chain. If the elephant tries to walk in a straight line perpendicular to the man, it will be as if the man never existed. However, if the elephant stood still and the man tied with the chain to the elephant tried to walk perpendicular to the chain, the man would only continue in a circle around the 250 foot elephant with a taut chain. The first consideration is so absurd that actual mathematical figures need not be punched into the associated formulas. Just the drastic disproportion of masses/forces/sizes and fundamental principles of “more is greater than less” tells us it is a matter of utter impossibility in the solar system to apply the same physical laws to all the planets and sun, and then use the same orbital quantities to make the very same sun orbit the earth of comparable mass and size.

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SUNGENIS Again, Mr. Case, what you are stating above is precisely the argument I’m using against you. You seem to think that the sun and its planets are in some kind of a universe all by themselves, away from the stars and all the other cosmic forces. But the fact is that there is a whole universe of stars out there which directly influence the forces we see in our solar system. For example, just agreeing with you for the sake of argument that the sun is 330,000 times the size of the earth, in that very system of measurement you are using, there are stars which are 330,000 times the mass of the sun, and sometimes larger. Betelgeuse, for example, is supposed to have a radius of the orbit of Neptune (almost 4 billion miles in diameter). Do you think Betelgeuse, being that massive, might exert some force upon our solar system? Yes, I think you would agree. Now multiply that force by the billions upon billions of stars you see in the sky, stars that circle the earth each night. Now, I can imagine that the force of these stars, working with or counteracting each other, is what helps keep the sun in its path. (Even you would have to admit this is the case, since in your system you already believe that the sun revolves around the Milky Way at 500,000 miles per second, and is held in place by the stars of the Milky Way.) This is why we insist that when Genesis 1 says that God “placed the sun, moon and stars in the FIRMAMENT” (the firmament being a physical object) it was done so in a way that all the billions upon billions of forces from each of these bodies were taken into account so that the system would work. Thus, even in your system, it is not an “absurdity” to say that the sun could rotate around the earth, for obviously it is not the earth alone that is involved in the forces that make the sun move.

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CASE The stars don’t have any effect because of their distance. If they did have such a power, our sun would show it because it is so close. Funny how you doubt the sun’s size and so easily accept “Betelgeuse”. I still don’t agree because the distance by formula shows the pull is negligible.

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SUNGENIS You say “The stars don’t have any effect because of their distance.” Can you prove that to us, Mr. Case? Isn’t your system the one that has the sun rotating around the Milky Way galaxy at 500,000 mph? So what in your system is keeping the sun in its orbit around these

stars? Is it not, according to your previous formula, the gravitational attraction of the “larger” Milky Way on the “smaller” sun? So apparently, even in your system, the stars are “close enough” to effect the movement of the sun, yet you claim that the stars are not close enough in my system. How so?

As for your statement “Funny how you doubt the sun’s size and so easily accept Betelgeuse,” you will notice that I said “in that very system of measurement you are using.” **I didn’t say I** accepted the size they give to Betelgeuse, I said that, in your system (the Big Bang, heliocentric system) Betelgeuse is purported to be as large as the radius of Neptune.

Incidentally, the currently accepted size of Betelgeuse is dependent on whether Newton’s third law of motion has no discrepancies. There are studies being done presently to determine whether his third law has any discrepancies, as is in fact valid. Already the Cavendish Torsion balance has discovered a .37% discrepancy.

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CASE The sun is in a relatively tight and well-formed circular path (or the earth is). There is NO possible way that a force whose center is the earth could pull the sun’s momentum. To try to gratuitously invent some “unknown force is doing it” is one thing, but it actually VIOLATES known demonstrable laws of the physical world. It doesn’t matter if the sun is 2,990,000 times as massive, the proportions of nature make it impossible for the earth to attract the sun. And if the earth HAD THAT STRENGTH, the moons and other planets would immediately suck right to it. It is absurd to say that force is the earth.

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SUNGENIS I answered this above. The force is not the earth. The force is the star system surrounding the sun and earth.

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CASE Just take the moon and sun into comparable consideration. Consider both the moon and sun revolve around the earth. The fact that they make an arc around the earth means that the earth has the force to pull both of them away from going in a straight line that their momentums insist upon going, and towards itself [the earth]. There is no question that the moon is smaller than the earth and closer and that it revolves around the earth. It is an UTTER IMPOSSIBILITY to apply the same physical laws such as to suggest that the same earth force also takes an object 330,000 times its mass, at a phenomenally LARGER distance away, at a phenomenally LARGER velocity and suggest the strength of the earth can pull the sun’s momentum out of a straight path. If the earth had such a pull, all the planets of comparable size would vie to pull the same sun, e.g. Venus would try to pull the sun towards itself, etc. One would have to resort to saying it is a constant miracle and intervention of God rather than having anything to do with physical laws. (But that would be relegating it to a mystery of faith, and we know the Church has allowed the heliocentric model. To say otherwise would be to accuse Christ’s Church of allowing heresy for centuries). Or resort to gratuitously asserting there is “some other” force in nature associated ONLY with the earth that gives it such gravitational power over the sun. But if it had such a phenomenal force, it would likewise have its effect on the other planets.....and it doesn’t. At every step it is an absurdity to think the sun goes around the earth, or any other planet. The heliocentric solar system is the only alternative to this absurdity, not just by

sylogistic default, but by positively fitting the established proven physical laws of momentum, velocity, distance and gravity of nature – consistently – among all the other bodies and their observable facts.

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SUNGENIS Again, all your assumptions are based on an unproven and unexplained theory of gravity, as well as an ignoring of all the other forces occurring in the universe that act upon our solar system. Unfortunately, this is the same problem into which modern science has gotten itself. Due to their sole reliance on mathematics to explain forces (as they do in the Newtonian and Einsteinian systems), they don't have a physical explanation for gravity, or any other force they encounter. As a result, their mathematical calculations not **only do not represent reality**, but they can only help when applied in isolated systems of one, two or three bodies. When a fourth, fifth or one hundred billionth body is added, they have no clue how it all works out. But we know how it does. The only way it can work out is when an infinite intelligence, God, places all the objects of the universe in their necessary locations in order that the forces caused by each one will completely balance out and result in the solar system we have today for earth. In that system, there is no reason, considering the principles I laid out for you in this essay, why the sun cannot be revolving around the earth. Thank you for your challenge. Robert Sungenis

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CASE In this format, I have repeated myself enough. What I have said above suffices for your remaining paragraph. You indicated at the outset of our exchanges that an explanation “must be direct, observable, physical, natural, repeatable, unambiguous and comprehensive.” You explain properly there what “demonstration” consists of, but then you respond to the challenge by denying “demonstration”! All the physical laws I mention involving movement, mass, inertia and orbital calculation can be demonstrated as physical laws – then you gratuitously call them theories and dismiss them. The very fact that they can PREDICT an outcome beforehand shows they can demonstrate the laws to be valid. A sun of such mass and speed revolving around a tiny earth not only shows to be inaccurate with the proven physical laws, but GROSSLY violates those laws to an insane proportion, especially as you try to apply the same force attributed to the earth to the surrounding planets in free-moving, empty space.

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SUNGENIS All your objections have been answered in my preceding paragraphs.

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CASE I see that your fundamental error on this subject is that you do indeed consider it intrinsically connected to the Faith, and this is the reason why you give precedence to literal interpretation over demonstration, and come to doubt the most common experience of physical laws and the fact that they have been proven by demonstration to predict outcomes.

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SUNGENIS Quite the contrary. I give precedence to literal interpretation because that's what the Catholic Church has always done, unless irrefutable and proven evidence forbids such an interpretation. As for “demonstration,” I've already shown you that mathematical formulas don't demonstrate which model is correct, since both models use the same math.

CASE You are going to have to understand the difference between something that is a danger to the Faith intrinsically as compared to extrinsically. That which is extrinsically a danger can cease to be a danger once the extrinsic circumstances change. That is why the Church condemned anyone to teach it at first, and then the extrinsic dangers faded away. The Church obviously has allowed Catholics to teach and believe it for centuries. The Galileo affair is THE most prominent case involving “the visible universe” and Scripture, and we see in 1893 when Pope Leo XIII wrote his encyclical “Providentissimus Deus”, precisely on “the study of Sacred Scripture”, he particularly had this in mind. How could he have not foremost had it in mind?” The sacred writers, or to speak more accurately, the Holy Ghost “Who spoke by them, did not intend to teach men these things (that is to say, the essential nature of the things of the visible universe), things in no way profitable unto salvation.” Hence they did not seek to penetrate the secrets of nature, but rather described and dealt with things in more or less figurative language, or in terms which were commonly **used at the time and which in many instances are in daily use at this** day, even by the most eminent men of science. Ordinary speech primarily and properly describes what comes under the senses; and somewhat in the same way the sacred writers — as the Angelic Doctor also reminds us — “went by what sensibly appeared,” or put down what God, speaking to men, signified, in the way men could understand and were accustomed to. The unshrinking defense of the Holy Scripture, however, does not require that we should equally uphold all the opinions which each of the Fathers or the more recent interpreters have put forth in explaining it; for it may be that, in commenting on passages where physical matters occur, they have sometimes expressed the ideas of their own times, and thus made statements which in these days have been abandoned as incorrect.”

Would anyone say that, with the notoriety of the historic Galileo controversy, that this pope had something else in mind and failed to note to his readers that it doesn’t pertain to the Galileo affair? Who would know what then he WAS referring to that “sensibly appeared” to be one way, but really wasn’t, in the physical universe? In 1893, when the whole Catholic world believed and taught Heliocentrism and dismissed Geocentrism, it is absurd to think the pope simply failed to take the occasion to correct the error to protect divine revelation! How could the divine institution of Christ’s Church allow centuries, and even more generations of Catholics living and dying, to come and go, and say nothing in condemnation? Why on the other hand would the Church repeatedly condemn Liberalism decade after decade, and other errors, but never repeat a condemnation since the time of Galileo? Simply because the extrinsic danger to the faith was no more. But now we have a handful of laymen at the end of the 20th century, smarter than all the popes and are ringing the bell to save people from danger? The implication of accusation against the Church cannot be avoided.

SUNGENIS First, you cannot prove that Leo XIII was speaking specifically about the heliocentric theory you are adopting. It would be hard to prove since the “Angelic Doctor” to whom Leo refers, namely, Thomas Aquinas, believed in geocentrism, not heliocentrism. So it is rather difficult to conclude that Leo is using as proof the very man who did not apply “what sensibly appeared” to be geocentrism?

Second, let’s suppose, for the sake of argument that Leo is speaking about cosmology (heliocentrism or geocentrism). If that is the case, he is saying nothing different than what Robert

Bellarmino had said regarding this issue. As we noted, Bellarmine told Galileo that:

“If there were a true demonstration that the sun was in the center of the universe...and the earth circled the sun, then it would be necessary to proceed with caution in explaining the Scripture which seemed contrary, and we would rather have to say that we did not understand them than to say that something was false which has been demonstrated.”

So this objection was already addressed by the Church. In other words, IF science had proven its case regarding heliocentrism, the Church was ready to reinterpret Scripture. But you will notice above that Leo DID NOT SAY that science had proven its case but only that “IT MAY BE THAT” such is the case. The words “MAY BE” are vitally important, since they mean that Leo is not committing the Church to saying that the Fathers DID merely “express the ideas of their own times,” but only that if science proved the literal interpretation of a passage to be inappropriate, THEN, and only then, did the Fathers “express the ideas of their own times.”

Third, Leo’s statement “which in these days have been abandoned as incorrect” does not identify who it is that did the “abandoning.” It is just a passive statement that, in his day, there was a consensus that a certain view of cosmology has been abandoned. He doesn’t say the Church has abandoned it. That leaves a consensus of scientists as those who have “abandoned” it. But is Leo saying that these scientists are necessarily correct? No, not by any means. He is only saying what Bellarmine said, that is, if the scientists are correct, then the Fathers were “expressing the ideas of their own times.”

But you and I both know that what the consensus of science knows today it may be modified or overturned tomorrow. For example, just a few months ago, two scientists from Australia made headlines, and their papers were published in the esteemed scientific journal, *Nature*, showing that their experiments have overturned Einstein’s theory of Relativity. Many other studies have been done with the same result. If anyone wants a good history of how science keeps changing its views, read Stephen’s Hawking’s book, *A Brief History of Time*. There are a number of books available which show the same history. Studies of the inside of the atom have made science appear like children playing in shooting gallery. As of this day, they still don’t know the physical model of the atom. They even have a name for this. It’s called the Heisenberg Uncertainty Principle.

In fact, what science tells us today, if we are honest with the data, is that not only is the heliocentric theory unproven, but much evidence shows that geocentrism is the more correct model. For example, astrophysicist V. P. Varshi found in 1975 that all 348 Quasars were positioned in successive concentric circles with the earth as the center. William Tifft showed that the red-shifts of galaxies occurred in certain preferred values, and William Napier showed that this was precisely 37.5 km/sec with the earth as the center of the values. A study was done in the 1970s at Cal Tech which, after adding all the known coordinates in space, found that they all canceled each other out and left earth in the center. The team said they were “horrified” by the results, because they supported geocentrism.

Speaking of “ecosystems,” what they also found was that the periodicity of extra-galactic red-shifts (37.5 km, or 1:1.23) was the same ratio that appeared in the spacing of the planets in our solar system, and in a study done independently by Brazilian, Italian, French and Croatian scientists, the same ratio in the Bohr model of the atom.

I could give you much more scientific information, but the point is made that there is a lot of

scientific evidence to support the geocentric position. Much of this information was not known in the time of Leo. Leo was on the upswing of Lyell, Darwin, James, and many other scientists who were making it appear that science was disproving the Bible.

In fact, being in the midst of the Evolution crisis, Leo's statement in *Providentissimus Deus* regarding the Fathers "expressing the ideas of their own times," was probably more pointed toward Evolution, since it was accepted by the scientific community that Lyell's long-age geologic column was a fact. If that theory turned out to be true, Leo wanted to prepare the world for the fact that when the Fathers spoke of "days" in Genesis 1 they may have meant long ages. Of course, we know today that Lyell's theory is just that, a theory. Sedimentology experiments and Mt. St. Helens have proven that strata can form in a matter of days. In addition, in 1982 the world's leading evolutionists, Gould and Eldridge, admitted that the intermediate fossils scientists hoped to find in Lyell's strata simply didn't exist. I'm sure I don't have to tell you of all the scientific evidence which we have found since the time of Leo which directly contravenes the theory of Evolution.

Thus, although you make Leo's statement in *Providentissimus Deus* to be a concession on the part of the Church, it may not be that at all. Leo chose his words very carefully, and as such, his statement is conditional, not absolute.

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CASE Lest anyone say that I am mistakenly accusing you are treating this subject as if it were "of faith", let me point out that you have specifically said Heliocentrism is a danger all around: "it directly affects how we view God, Scripture, the Church, and Modern Man."

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SUNGENIS Yes, it most definitely does affect how we view God, Scripture, the Church and Modern Man. I stand with St. Robert Bellarmine. He said that asserting an unproven scientific theory as fact does "injury to our holy faith and renders the Holy Scriptures false." I'll stand with the three popes who condemned any person who said it was incontrovertible fact that the earth moves. I'll stand with Solomon and the Fathers who said that the sun moves and the earth does not. And I'll stand by the scientific evidence which does the same.

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CASE More evidence that you treat this as pertaining to faith is your comparison: "If someone wants to argue that the Catholic Church takes Matthew 26:26 literally because the Tradition of the Church as far back as the early Fathers binds us to do so; well, the same can be said about Geocentrism, since all of the Fathers, without exception, were Geocentrists, even in the face of several Greek astronomers (Aristarchus of Samos; Heraclides of Pontus) who were already advocating Heliocentrism one thousand years before Copernicus." As they say, you are comparing apples and oranges. The Church Fathers only "comprehended" what they read about the sun, like any other Christian, by the default literal interpretation AND their own senses, but they did not consider it a religious belief of divine revelation. Matt 26:26 was divine revelation that was not of the senses. One is of Faith, the other is not.

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SUNGENIS If you claim such, perhaps you can show us where the Fathers state that they were merely "comprehending" and did not consider it a religious belief of divine revelation. I

beg to differ with you. In the face of Greek opposition, the Fathers understood geocentrism as precisely a point of divine revelation, since that is what Scripture said. The Fathers knew the alternatives (heliocentrism) and they knew that such explanations were entirely plausible, but they rejected those plausibilities, just as Robert Bellarmine did 1000 years later, since no one had proven that the plausible was indeed the truth. If there was no competition from the Greeks for an alternate cosmology, you would have a point. But if you read the writings of the Fathers on this subject you will find that their belief in Scripture teaching geocentrism was used as a polemic against the Greeks who had NO divine revelation to guide them.

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CASE It is merely pious faith, and safe, to hold to the literal interpretation in lieu of demonstration & authority to the contrary. It is Protestant to hold to the literal interpretation against demonstration and the authority of Christ's Church which has clearly allowed it to be taught for centuries without condemnation.

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SUNGENIS As I have shown quite easily, Mr. Case, you have only "demonstrated" that your theory uses the same math as mine. You haven't "demonstrated" heliocentrism as a proven fact, and that was the essence of this challenge.

Second, what "authority of Christ's Church" are you referring to? It certainly can't be Leo, for he gave no mandate against geocentrism. As we saw, he merely said "IT MAY BE THAT" the Father's spoke in a certain way, but that's the same thing Bellarmine said. In fact, you can search far and wide in the Catholic Church's documents and you will find nothing that specifically countermands the decrees of Pope Urban VIII and Alexander VII on the geocentric issue. All you have is that books about the Copernican theory were secretly removed from the Index in 1757 and 1835 when the Index, for all books on all subjects, no longer had the same requirements it had in 1616, but that certainly is not a statement asserting the veracity of the Copernican theory.

In fact, in 1822, when Pius VII allowed Canon Settele to teach the Copernican system, his based his permission not on heliocentrism as fact but merely as the "general OPINION of modern astronomers." As far as authority goes, the dilemma is more on your side of the fence, since you are faced with a papal bull by Alexander VII which specifically denied the "motion of the earth," whereas Pius VII merely allowed Settele the option to teach the "opinion" of modern astronomers. Allowing someone to inform other people about the "opinions" of someone else is hardly an official endorsement of the opinion, but a papal bull, as many argue, is infallible.

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CASE Literal interpretation is a rule of thumb for the layman studying Scripture when not being sure of what the Church allows. Once we know what is allowed, the literal interpretation is no longer a rule if the Church obviously allows to the contrary. Think about it, where was heliocentrism mentioned when the Church repeatedly condemned the myriad errors of Liberals in the 19th century? Where was St. Pope Pius X to mention it when enumerating the list of "modern" errors?

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SUNGENIS Other than Pius VII allowing Settele to write about the "opinions" of modern

astronomers, what official evidence do you have that “the Church obviously allows to the contrary.” I can tell you this. There is no official statement from the Church that specifically allows one to interpret the historical statements in the Bible other than literally. If you have one, I’d like to see it.

Even the Catholic Catechism is very cautious about this. For example, in para. 337 it states: “God himself created the visible world in all its richness, diversity, and order. Scripture presents the work of the Creator symbolically as a succession of six days of divine ‘work,’ concluded by the ‘rest’ of the seventh day.”

Since the word “symbolically” is used, some have concluded that the Catechism is teaching that Genesis 1 is merely symbolic. But that is not what the Catechism says. The only words that are put in quotes in para. 337 are “work” and “rest,” since they are the only words we know are symbolic, for God does not literally “rest” and “work.”

As for interpreting literally, rather than your self-imposed rule, the Church’s mandate from Pope Leo in *Providentissimus Deus* is the following: “...not to depart from the literal and obvious sense, except where reason makes it untenable or necessity requires.” So far in your challenge, Mr. Case, you have shown little in the way of making a geocentric interpretation of Scripture “untenable,” nor have you shown anything that makes heliocentrism a “necessity.” On that basis, then, Leo’s mandate requires you to interpret Scripture literally until you do find such irrefutable evidence.

Notice also, as opposed to the statement you cited earlier from Leo, the present statement does not include the words “it may be that.” Rather, Leo makes it clear that we are NOT, with no conditions, to depart from the literal and obvious sense, unless it is untenable. Do you really think, Mr. Case, you have enough knowledge of science to make geocentrism “untenable” (i.e., without any plausibility at all)? Everything you have offered in the way of science, math and logic has an alternate interpretation and explanation.

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CASE Now that we have been back and forth a couple of times over my original submission, things are certainly becoming clearer to me why you maintain what you do. However, I thought I would now take the opportunity to consolidate the subject matter, as it has become burdensome to follow multiple points in the conversation-per-paragraph format, especially for those who wish to follow along.

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SUNGENIS The only problem with your “consolidation” is that you have conveniently eliminated some of the more important challenges I have given you to your own view of things. For the sake of our audience, I will bring up a few of them again in this post. As for the others, you can look back at the previous posts.

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CASE 1. The Playing Field: You have advertised that you have "decided to make a level playing field" by offering a large sum of money. I think you ought to alter that description. The money is certainly an added motivation for accepting the challenge. However, the actual "playing field" can never be level when the one challenged is also the judge. This is hardly

"level"; it merely confirms your seriousness by giving yourself something to lose. I certainly accept the conditions, I just think you should omit the faulty description for the public.

SUNGENIS You entered this challenge fully accepting the “description” that I was the final judge of the issue. If you didn’t think it was acceptable at that time, you could have declined to enter the challenge on that basis. Crying foul now says more about your insincerity than mine.

CASE 2. The public challenge states,

By "proof" we mean that your explanations must be direct, observable, physical, natural, repeatable, unambiguous and comprehensive. We don't want hearsay, popular opinion, "expert" testimony, majority vote, personal conviction, organizational rulings, superficial analogies, appeals to "simplicity," "apologies" to Galileo, or any other indirect means of persuasion which do not qualify as scientific proof.

I have seen so far that you have violated your own rules by presenting things plainly against your stated idea of what "proof" actually consists of. I will get into details and examples further on. One such glimpse is your statement on the front page of your Web site mentioning the, "so-called "laws" of physics" and how they are "not laws at all", but "unproven theories."

SUNGENIS The “Challenge” said YOU were to provide proof for the heliocentric cosmology, not me. If you claim, as most of your persuasion do, that you can prove heliocentrism based on scientific evidence, then you are REQUIRED to provide the proof. I, on the other hand, simply state that Geocentrism, because it can provide all the necessary mathematical and scientific requirements, is a natural rival alternative to your system. I maintain that the one that is true cannot be proven from the scientific evidence, and that is why I offer no proof. I only offer alternatives using the same Newtonian mechanics that you use for your system. The only reason I appeal to scientific evidence is to show the reader that, despite claims to the contrary, the Geocentric system can be shown to function well under such scientific rubrics, and thus science cannot be used to dismiss Geocentrism. In turn, I simply direct the reader to Scripture, the Fathers, and the authoritative statements of the Catholic Church for the authority they need to decide which system (heliocentrism or geocentrism) is indeed correct.

CASE 3. Concessions you made in the following two recent excerpts...

- "Mr. Case, you have shown little in the way of making a geocentric interpretation of Scripture "untenable".

- "geocentrism is the more correct model"

This is a clear admission that you think I have shown "some" things in the way of making geocentrism untenable, and that you think my position is "correct" albeit LESS correct than yours. I think this speaks for itself without further comment.

SUNGENIS The only thing the above statement speaks of is your presumption. I in no way meant, and certainly did not say, that you have made “geocentrism untenable.” When I say “more correct” I am drawing the reader’s attention to two things: (1) of the two systems, the only one supported by the three witnesses I described above (Scripture, Fathers, Popes) is the geocentric model; and (2) the geocentric model does not depend on the unproven theories of Relativity and Evolution and all the ramifications they entail. The geocentric system is a simple, straight forward model that makes use of all the known components in the science of physics.

CASE 4. You stated that I believe, "Earth to be moving in an a-centric universe". Actually "acentric", but I have never used that concept in all that I have written. Everything material that exists certainly has a center, but that is irrelevant in considering the science of whether the Earth revolves around the sun, or *vice versa*.

SUNGENIS You believe there is a center to the universe, Mr. Case? Then where is it, and how do you determine it? Making assertions is easy, proving them is another story altogether. The fact is, if you believe that everything in the universe is in motion (which is not an option, but is required by the heliocentric system), then you have absolutely no way of determining the center of anything. Geocentrism, on the other hand, makes it easy for us. The center is the earth, as even recent astronomical evidence has shown us (e.g., the studies of astrophysicists Varshni, Cal Tech, Napier, Burbidge, Karlsson, Neto, Agnese Festa, Nottale, Rubcic, et al, and to which you have provided no response). What must be understood is that, by Einstein’s own admission, the theory of Relativity (which purports that there is no center to the universe, for that’s what “relativity” means) was formulated to answer the 1888 Michelson-Morley experiment that demonstrated that the earth was standing still in space, and thus serving as the natural center of the universe (and to which you did not respond).

CASE 5. During the course of this exchange you attempt to ascribe beliefs to my position that I have never professed, and then fault me for "mere assumptions rather than cold hard facts". Things such as the theory of "dark matter" and "the universe collapsing". They might be held by some heliocentrists but they are not part and parcel of heliocentrism. There is no direct relationship to the subject of our solar system, as to whether the Earth or sun moves. I do not hold those things. I have only presented DEMONSTRABLE laws of physics which ironically you have swept under the carpet as mere "theories" by countering with hypothetical assumptions of your own that are NOT demonstrable. More details further on.

SUNGENIS First, if you don’t want to adopt the prevailing theories of heliocentric science, that is your prerogative, but the consequence of that is that you have to come up with your own theory of how the universe is put together. I haven’t seen you offer one. You cannot deal with this issue in a vacuum, as if our solar system is isolated from the rest of the universe. Everything is connected to everything else. You cannot avoid the fact that, in your system, the sun must be moving around the galaxy, and the galaxy must be moving around still larger clusters, and so on. That being the case, you must answer the nature of the red shift, Olber’s paradox, 3 degree

Kelvin radiation, recession of galaxies, instantaneous effects of gravity over long distances, and about a dozen other difficulties. Without an explanation for these things, you don't leave room for a heliocentric solar system, except in theory. But if it's mere theory, then you've lost the "Challenge," since it requires proof of heliocentrism.

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CASE Apart from demonstration as proof, the issue of the Church is a distinct issue that should be addressed in its own space. In fact, for Catholics, it should be the primary issue before going on to details of secular science. You have yourself given considerable time to it in this exchange. Therefore, I am going to speak of these matters first before addressing secular science.

Intrinsic or Extrinsic Danger to Faith? I have mentioned this distinction but you have skirted around it. That which is INTRINSICALLY dangerous to the Faith can never be otherwise, and can never allow even the possibility that it could be otherwise. For example, the truth that Our Lady is in heaven, body & soul, is a truth that can never be otherwise. This means that one could never suggest even the "possibility" that we can find any remains of her body on Earth. To allow for the "possibility" is to doubt it, which is heresy, and can never be otherwise.

But while a "denial" of a truth like that is a heresy, there are lesser condemnations for things which are merely "dangerous" to the faith, and these are heretical. The practice of the Church ascribed "heretical notes" to some things merely for being "rash", "scandalous" or "offensive to pious ears". Such discipline is necessary because the Church doesn't always make an immediate and final decision on whether the danger is extrinsic or intrinsic. The matter must be looked into. Some things are EXTRINSIC dangers to the faith, depending on what the Church decides. When it is truly a case of an extrinsic danger to the faith, the danger depends on whether extrinsic circumstances can change. Knowledge can overcome rashness, scandal and the offense to the ears of the pious.

One excellent example is the theory of the "Antipodes" which parallels that of the controversy about the Earth and sun. Here is an excerpt from the 1913 *Catholic Encyclopedia*:

Speculations concerning the rotundity of the Earth and the possible existence of human beings "with their feet turned towards ours" were of interest to the Fathers of the Early Church only in so far as they seemed to encroach upon the fundamental Christian dogma of the unity of the human race, and the consequent universality of original sin and redemption. This is clearly seen from the following passage of St. Augustine (*De Civitate Dei*, xvi, 9):

As to the fable that there are Antipodes, that is to say, men on the opposite side of the earth, where the sun rises when it sets on us, men who walk with their feet opposite ours, there is no reason for believing it. Those who affirm it do not claim to possess any actual information; they merely conjecture that, since the earth is suspended within the concavity of the heavens, and there is as much room on the one side of it as on the other, therefore the part which is beneath cannot be void of human inhabitants. They fail to notice that, even should it be believed or demonstrated that the world is round or spherical in form, it does not follow that the part of the earth opposite to us is not completely covered with water, or that any conjectured dry land there should be inhabited by men. For Scripture, which confirms the truth of its historical statements by the accomplishment of its prophecies, teaches not falsehood;

and it is too absurd to say that some men might have set sail from this side and, traversing the immense expanse of ocean, have propagated there a race of human beings descended from that one first man.

This opinion of St. Augustine was commonly held until the progress of science, whilst confirming his main contention that the human race is one, dissipated the scruples arising from a defective knowledge of geography.

Had this "fable" been prominently promoted to the public as a fact by a well-to-do Catholic, the Church could likewise have condemned it as heretical. It would have certainly caused disruption for being rash, scandalous or offensive to pious ears when it was accompanied by no real proof and knowledge of geography. Though many could have originally suspected it was intrinsically a matter of faith, we know today that it would have been only a danger extrinsically and not in itself. Therefore, had the Church condemned it as heretical, the Church would be correct insofar as there was a "danger", yet though the Church could have been wrong as to the "fact" of the Earth being round, such mistaken fact is not intrinsically connected to the faith, and does no harm to infallibility (for the sake of argument, if infallibility could even be brought into it at all).

SUNGENIS The spherical shape of the earth was not an issue in the 16th century Galileo crisis, and neither popes nor the Sacred Congregations ever had to decide on the shape of the earth, and thus your example is not germane to this subject. The fact remains that, in dealing with the specific subject of whether the earth goes around the sun, three popes gave some of the most dogmatic teachings we have ever had on a matter of scientific interest. When they gave their decrees, they stated quite plainly that heliocentrism was an "heretical" concept, and thus, they, not I, made it a matter of faith. And despite Paul VII's allowance for heliocentric "opinions" to be taken off the *Index*, none of those three popes' edits have ever been abrogated or nullified. Until a pope or Council in the future states that the decrees by Paul V, Urban VIII or Alexander VII are null and void, then we are stuck with what they said. Irrespective of the *Index*, which history shows changed over time, the fact remains that these popes said heliocentrism was "heretical" and "contrary to Scripture." Those statements stand alone. Unless they are nullified by an even higher authority, then we are bound by them.

CASE Another prominent example of an extrinsic danger is the sin of "usury". The Church has repeatedly condemned such as unjust and sinful, but as we see history progress, its condemnation became less and less as the economy changed substantially to favor industry and investment. It was a sin of injustice, but the sin was tied to the changeable economy of secular society. The Church flatly condemned the practice in the context of the economic system then presently in place, without speculating that a substantial change in the economy would take place in the future. But later, as the economy of man made it more and more easy to invest money for a return, the sin of usury became less and less prominent and today is almost unheard of. Usury was an extrinsic evil that could once again become prominent were the economy of man to change once again to a point where investments were no longer commonplace. We don't today look to former condemnations of usury when it is clear what the Church has since permitted charging interest.

SUNGENIS The issue of Usury is not germane either, since later popes, when confronted with prior issues regarding usury, gave definitive and formal written judgments to relax certain of its provisions. Examples of further papal decisions on usury were made by Pius VIII (1830) and Gregory XVI (1838). (*Denzinger* 1609, 1610). There were no such official reversals or modifications of the edicts of Paul V, Urban VIII and Alexander VII regarding Geocentrism, save for the right to publish the “opinions” of various astronomers by Pius VII.

CASE Now, the very fact that St. Robert Bellarmine allowed for the *possibility* of demonstration for the heliocentric theory, shows that the danger he was concerned about was most certainly *not* an "intrinsic" danger, especially because we have heard nothing against St. Robert's allowance, nor against the approval of Copernicus' book by a pope. When the Church condemned Galileo and this error, She was condemning the dangers against the faith for extrinsic reasons in the context of its rashness, lack of proof, how it would disturb the public, and in context of the serious heretical atmosphere of the Protestant revolts.

SUNGENIS First allow me to address St. Robert. This is what he, as head of the Sacred Congregation, wrote to Galileo:

We, Robert Cardinal Bellarmine, having heard that Signor Galileo was calumniated and charged with having abjured in our hand, and also of being punished by salutary penance, and being requested to give the truth, state that the aforesaid Signor Galileo has not abjured in our hand not in the hand of any other person in Rome, still less in any other place, so far as we know, and of his opinions and teachings, nor has he received salutary penance nor any other kind; but only was he informed of the declaration made by his Holiness and published by the Sacred Congregation of the Index, in which it is stated that the doctrine attributed to Copernicus – that the earth moves around the sun and that the sun stands in the center of the world without moving from the east to the west, is contrary to the Holy Scriptures and therefore cannot be defended nor held [Latin: non si possa difendere ne tenere]. And in witness of this we have written and signed these presents with our own hand, this 26th day of May, 1616. Robert Cardinal Bellarmine. (Cited in Antonio Favoro’s *Galileo e l’Inquisizione, Documenti de Processo Galileiano, per la prima volta integralmente pubblicati*, Florence, 1907).

Notice that Bellarmine refers to “the declaration made by his Holiness” (i.e., the Pope) that Copernicanism is “contrary to the Holy Scriptures and therefore cannot be defended nor held.” Thus, I don’t know what you are referring to when you appeal to “St. Robert's allowance.” Perhaps you are misconstruing Bellarmine’s statement to Galileo that he [Bellarmine] had received no proof from Galileo of an alternate cosmology.

Moreover, Bellarmine’s wording in the above paragraph does not speak to merely “extrinsic” issues as you claim. Telling someone that his views are “contrary to the Holy Scriptures” goes right to the bedrock of the INTRINSIC nature of doctrines that are harmful to the faith. Is there anything more intrinsic than being judged as “contrary to Scripture” by the highest office in the land? If there is, please tell me what it is.

If it's scientific "proof" you claim will rescue you from these papal edits, then please, show us the proof you have. All you have shown so far are mathematical equations, but they prove nothing except that you can add and subtract.

CASE God's order requires us to KNOW before presenting something publicly as a fact. You can see by the quote above that St. Augustine allowed for demonstration also, but specifically made mention that those who promoted it did not "possess any actual information". This was also the case with Galileo and why St. Robert rejected it because there was nothing to demonstrate it. However, when something is intrinsically against the faith, you simply cannot suggest the "possibility" of demonstration against it.

SUNGENIS Since it stood in Bellarmine's mind that Galileo had presented NO proof, then Bellarmine's offer to Galileo was merely gratuitous. This is proven by the fact that the above declaration I quoted from the Sacred Congregation makes no mention that Galileo would ever find any proof. The above declaration simply says that Galileo's proposal was "contrary to the Holy Scriptures," period. If Bellarmine, or the Pope who commissioned him, had ever seriously considered that Galileo, or anyone else, could have found proof for Copernicanism, they surely couldn't have written the above declaration as matter of factly as they did. You might judge their words as quite audacious and ill-informed, but apparently they didn't think so. Bellarmine was no fool. Surely he was aware that if someone DID have proof for Copernicanism, now or in the future, he could not say the things he said in the above quote. But the fact is that he doesn't even suggest the possibility of disproving an immovable earth in the above declaration. Read the document very carefully. There is absolutely no equivocation in his, or the Pope's, words. That's what you have to deal with. If you can find us one pope who officially and specifically abrogated the above declaration, showing us that he admits and acknowledges a formal error in Paul V, Urban VIII and Alexander VII and dogmatically reverses their decisions with a papal bull of his own, then you've won this debate. But until then I'm afraid you're stuck with what Bellarmine wrote above.

CASE The most significant factor of all, for those with a proper Catholic sense, is that the Church obviously has permitted the heliocentric theory to be taught to Catholics for centuries. This means that the extrinsic dangers ceased to exist as science advanced, just as with the theory of the Antipodes. Catholics have universally been taught it with not the slightest objection from the Church, while other relatively obscure errors were repeatedly condemned by the Church associated with Liberalism and Modernism. Heliocentrism was taught widely to all Catholics in the schools yet there were no historical condemnations by Popes, Saints or theologians stating that the centuries-old disciplines were in effect. The situation was like that of usury. The fact that the books promoting Copernicus' theory were long ago deliberately removed from the *Index* is plainly significant. I object to your characterizations that they were "secretly removed" from the *Index*. That they were gone was publicly discernible; nothing "secret" about it. The Church decided to do it for a reason, which is obvious...the danger no longer existed. As St. Thomas said, "it would be blasphemy to say that the Church does anything in vain" (Supp. Q. 25. A.1)

SUNGENIS You say “that the Church obviously has permitted the heliocentric theory to be taught to Catholics for centuries”? That is a misrepresentation. I know of no official papal or conciliar statement which says, in effect, “we permit the teaching of heliocentrism.” I know of no official papal or conciliar document that denies that the earth is immovable. The only thing certain prelates have done is given a passive acknowledgment of the competing theory of heliocentrism. But passive acknowledgement doesn’t prove anything, nor does it annul previous papal edicts. The Church today passively acknowledges and permits almost all of its seminaries and universities to teach that Scripture is full of errors of historical fact, but that doesn’t mean that there are errors in Scripture, nor that the Church has ever actively and dogmatically taught that there are errors in Scripture. The Church allows the same institutions to hold and teach evolution, but that doesn’t make evolution either ecclesiastical or Scripturally valid.

As for your quote from Aquinas (“it would be blasphemy to say that the Church does anything in vain”), you might do well to apply that to the words of Paul V who said that Copernicanism was “absurd, false in theology, and heretical, because absolutely contrary to Holy Scripture,” or Urban VIII’s words stating “the error and heresy of the movement of the earth,” or the papal bull of Alexander VII which condemned “all books teaching the movement of the earth and the stability of the sun.” When you can come up with a papal bull of like-authority to that, which states specifically that Copernicanism is no longer an “heretical” concept, then you have something to talk about. Until then, all you have is one pope who allowed “opinions” to be published (Paul VII), but who in no official statement repudiated or annulled the solemn edicts of his predecessors.

CASE The *sensus Catholicus* knows the implications – to say the former disciplines were still in effect despite the clear practice of the Church for centuries is to plainly condemn the Church for not protecting the Catholic faithful as they were universally being taught the heliocentric model!

SUNGENIS Oh, you mean like they are protecting the flock from reading the footnotes of the *New American Bible* that they endorse which contains page after page of accusations that Scripture is full of historical errors? Or protecting the flock from the wayward ideas of Teilhard de Chardin, Karl Rahner, Edward Schillebeeckx, and every other liberal theologian who denies basic tenets of the faith? Or who allows immoral prelates like Mahony, Weakland and many others to turn our dioceses into Sodoms and Gomorrah’s?

CASE Christ’s Church, a perfect supernatural society, simply cannot fail to protect generations of Catholics who have lived and died being taught and believing the heliocentric model IF it were harmful to the faith. That is most strenuously an impious notion to place on the Church of Christ.

SUNGENIS The only thing “impious” here is your stubborn refusal to accept the official edicts of three popes on the matter we are discussing, and instead you choose to declare their official teachings as errors. By what authority do you claim to do such? If you claim that

authority rests in the Church of today, then show us where any pope or Council has made an official annulment of the edicts of the three popes in question. If you don't have such a statement, then you don't have any authority. Somehow, the possibility that the three popes God put in place in the seventeenth and eighteenth century who were also trying to "protect generations of Catholics" simply doesn't register with you. You would rather take the word of the atheistic and agnostic scientists as your authority of choice, since you certainly don't have any authoritative statement from the Catholic Church dismissing Geocentrism and validating Heliocentrism.

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CASE Pope Leo XIII was on the very doorstep of the issue and did not mention a condemnation.

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SUNGENIS That supports my side, not yours. The fact that Leo XIII did not reverse or annul the decisions of Paul V, Urban VIII or Alexander VII shows that he wanted nothing to do with committing the Catholic Church to the speculations of science.

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CASE The *Catholic Encyclopedia* of 1913 in many places mentions heliocentrism as a commonplace belief.

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SUNGENIS If I had a dollar for every "commonplace belief" that man has held, but was eventually overturned by later "commonplace beliefs," I'd be a rich man. What you need to support your contentions are not the *CE* reflections on what was common, but a reference in the *CE* which documents an official and specific reversal of the edicts of Paul V, Urban VIII and Alexander VII.

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CASE Pope Pius XII mentions the stand of Copernicus to the *Pontifical Academy of Science* in the 1950's as if it were a recognized historical breakthrough. Yet YOU are doing the job that centuries of popes failed in – to protect Catholics from this danger? The implications are blasphemous. Sins of omission are actual sins. People lose sight of this today.

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SUNGENIS If you are referring to the 1951 speech to the *PAS*, yes, and in the same piece he treats evolution as an historical and scientific fact. I have written a paper on this speech if you would like to see it. So if it treats evolution as a fact, and yet his 1950 encyclical says evolution is not a fact, and those who make it so are way out of bounds, what does that tell us. It tells us the same thing that happens today when the Pope gives a *PAS* address. Most of what the Pope says in the speech is written by the *PAS*. Be that as it may, since when do the private opinions of anyone in the hierarchy serve as dogmatic beliefs for the faithful to hold? Can you cite an official and binding teaching of Pius XII which tells us that Geocentrism is wrong and that Heliocentrism is correct. If not, then the only thing "blasphemous" here is that you would charge someone as being "blasphemous" who bases his beliefs on three prior official papal edicts that have never been officially annulled. What is "blasphemous" is that you put such trust in the religion of Scientism such that anyone who challenges your viewpoint is committing the sin of

“omission.” It wouldn’t be so bad if you had done a half-way decent job in marshaling some credible scientific proofs for your claims, but not only have you not done so, your “scientific proofs” to our Geocentric challenge have been some of the most vacuous of all the submissions on our website.

CASE You are treating the Church like it is a compilation of secular legal statutes where only explicit documents are to be required, when in fact it is a supernatural moral society guided by the Holy Ghost to protect every generation of the faithful. You are accusing the Church for not protecting the faith of many generations who have lived and died being taught, and believing, in the heliocentric model.

SUNGENIS So the Holy Spirit doesn’t guide the Church when She issues “legal statutes” in “explicit documents”? All those “legal” canons and “explicit” anathemas the Church has issued over the centuries against false doctrines are inferior to the “supernatural moral society” that you envision? Know this, Mr. Case: It is precisely through the “legal” and the “explicit” that the Holy Spirit has protected His flock since time immemorial. Every heresy and bad idea ever perpetrated by man has been thoroughly squashed by legal edicts and explicit (not ambiguous) doctrines coming from our forefathers in papal decrees and conciliar statements. The problem here is that you simply don’t like the fact that three popes issued formal and official condemnations of Copernicanism. That is just a thorn in your side that you simply have a difficult time accepting, other than discrediting those popes as being guided by the Holy Spirit and instead appealing to the amorphous “supernatural moral society,” whatever that is. The Holy Spirit doesn’t guide us to truth through popular opinion. That’s the type of religion you’ll find in the *New Age* movement or *Scientology*. If you read the *Bible* carefully, you will find that, like Israel in the *Old Testament*, the *New Testament* church was overrun with false prophets. The Christians were so taken by these false teachings that Paul and the other writers constantly warn them that they will lose their salvation if they don’t repent of the false teachings and practices. The Holy Spirit makes no guarantee that Christians will be obedient to His commands. The only thing he guarantees is that no matter how bad it gets, the gates of hell will not prevail in the end. In that realm, the Holy Spirit has been faithful in preserving our doctrine from any tinge of error. But you do a horrendous disservice to the Holy Spirit by suggesting that He led three popes to commit some of the most horrific errors ever known to mankind. Obviously, from your perspective, you don’t believe that Paul V, Urban VIII and Alexander VII were part of the “supernatural moral society”?

CASE All this means is that one cannot say the heliocentric model is harmful to the faith anymore, because extrinsic circumstance have changed. However, you can still promote what model you think is the correct one according to scientific fact.

SUNGENIS So you speak for the Church on this issue? If that is so, please tell me where can I find an official statement from the Church that says that the “heliocentric model is not harmful to the faith anymore because extrinsic circumstances have changed”?

CASE Pope Leo XIII wrote *Providentissimus Deus* in 1893 and stated, "...the rule so wisely laid down by St. Augustine – not to depart from the literal and obvious sense, except only where reason makes it untenable or necessity requires..." Because the Church has obviously permitted it, necessity indeed requires it to avoid faulting the Church.

Be that as it may, on the purely secular side, my position has focused on the concept where "reason makes it untenable", meaning that in a case of only two models, absurdity in one automatically makes the other the reasonable one.

Judging from your inconsistent use of terms, I think that you are confusing what is "science" and what is "scientific". A "theory" may be scientific, but it only becomes "science", properly speaking, once it is proven, or demonstrated. Theories are merely unproven possibilities suggested by the mind. They are called "scientific" only because they pertain to science, as a means of attaining fact. Theory is science in the process of being built. For example: theory tells us by solid mathematics that space is infinitely divided in half, such that an inch can be divided to a half, then a quarter, then an eighth, and so on to infinity. However, literally at the drop of a hat we can prove the theory is wrong otherwise there would be no such thing as movement – but there IS. Therefore the theory no longer exists – because it is easily proven there must be a smallest possible distance. And when we bring Church teaching into it we see that our conclusion makes sense since the attribute of "infinity" cannot be attributed to any thing created, which is "finite" by nature. The reason the concept is in our mind, and not in the created world, is because our minds are spiritual and are capable of understanding "infinite".

Science properly speaking is "knowledge" (from the Latin word for knowledge) of the aforementioned kind that both St. Augustine and St. Robert requested as necessary – that which is a fact because it can be demonstrated. It seems you have done well to explain what you request for as "proof", but from the proceedings you violate your own rules by your main assertions for geocentrism:

1. The sun is embedded at a distance from the Earth. This is a merely gratuitous, hypothetical invention or assumption with no basis in demonstration and flatly goes contrary to our demonstration that objects in space are as free to move as in space with gaseous atmosphere. You are presenting science fiction not a "cold hard fact".

SUNGENIS First, the "Challenge" is not for me to prove Geocentrism, but for you to prove Heliocentrism, since of the two of us, you're the one who claims that you can prove his model from science. Thus, if I present a hypothesis for my view that may or may not be true, it does no damage to my end of this challenge, since I don't have to prove anything. The only thing I have to show is that you have no proof for your model. For my proof I turn to Scripture and Church teaching, not science. The only thing science shows me is that Geocentrism is a plausible model of cosmology.

As for assertion that "objects in space are as free to move as in space with gaseous atmosphere," I'm sure you've heard of the thing called GRAVITY. That's the force in your system that keeps things from flying off into various directions. Granted, within that envelope of gravity objects have some freedom to move about, but they don't have much. If you don't believe so, then

please tell us why, after so many millions of years, the earth's orbit (as you believe it performs) has not deteriorated.

Second, that the heavenly bodies are "embedded" in an ultra-fine substance is an ongoing scientific concern made by many scientists over the last century, and it is not, as you claim, "merely gratuitous, hypothetical invention or assumption with no basis in demonstration." I suggest you read up on the Sagnac experiment of 1913 (the one which Einstein totally ignored) which shows that there is a substance permeated in space that effects every heavenly body. These same experiments were repeated by Michelson-Gale in 1925 (whom Einstein also ignored), and Dalton Miller in 1933 (whom Einstein also ignored, and in fact, tried to silence), and Herbert Ives in 1943. I've read the literature and I can assure you that my assertions are not pipe dreams, but have some of the most sophisticated experimental evidence ever gathered by science. Even Newton himself, contrary to popular opinion, said he never wanted to be understood as advocating a totally vacuous state between heavenly bodies.

CASE 2. The stars in the universe push and control the sun around the Earth. Merely hypothetical "assumption" or "cold hard fact"?. When you consider vector forces that would be required to point to the center of the Earth, the forces would all negate each other from the other side of the universe, which makes it absurd. Like 10 men surrounding a large ball and all pushing on it from different angles! And when you apply this assumption to the other planets revolving around our sun, those forces, you would have to say, are not pushing towards the Earth but are pushing all of them RATHER toward the center of the sun WHILE it is moving 24 million miles/hour around the Earth!

SUNGENIS Again, I don't have to present any "cold hard fact." In fact, I'm the one saying that there are NO "cold hard facts," for either you or me. That is why I'm saying that it's useless for you to try to prove Heliocentrism, since you don't have any "cold hard facts" at your disposal. But not only do you not have any "cold hard facts," but you don't have any Scripture, Patristics or official Papal statements supporting your view. In effect, you have nothing, except the claims of some scientists, most of which claim no allegiance to God.

As for "theories," you haven't read the literature on Le Sagean gravity, have you? My guess is that you haven't even heard of it until I mentioned it to you. For that matter, you know precious little about Newton's theory of gravity. In fact, Newton and Le Sage knew each other and exchanged notes on this issue. My guess is you know relatively little science, since from the way you express yourself and the evidence you bring forth you show a remarkable ignorance of current ideas. Yet you like using words like "blasphemous" and "absurd" to make it look like you know what you are talking about. Unfortunately for you, I can see through it very easily. I suggest that before you start critiquing the theory, you might want to read up on it first.

As for your statement that "the forces would all negate each other from the other side of the universe," you're closer than you think. As I mentioned in my last post (which you never answered), a study done at Cal Tech about 25 years ago found that, when they added up all the forces in their telescopic field, they found that they all cancel each other out, but with one very interesting result – the earth was in the neutral zone of the cancellations. In other words, the earth was found to be the center of all the forces, and thus the center of the universe. They found that

to be, in their own words, “a horrible conclusion,” since it supported Geocentrism, not Heliocentrism. Perhaps that is why the *Bible* says in **Job 26:7** that “he hangs the earth upon nothing.” Another study done by Varshi of the known 348 Quasars found that all of them were arranged in concentric spheres, but with one interesting feature – the earth was in the exact center of each sphere.

CASE 3. The Earth is unique among the planets. Merely gratuitous in order to escape having to apply known and proven physical laws that have already been demonstrated as true science, while you insist others present a natural and physical explanation.

SUNGENIS What “proven physical laws” have I, as you say, “escaped”? Flinging accusations is one thing. Backing them up is quite another.

CASE And while we notice that all other planets are revolving on their axes and have their own day and night because of it, you gratuitously escape this by simply claiming “uniqueness” for the Earth, out of thin air, even though the Earth, of comparable size and looks, sits within this natural solar system of God's creation.

SUNGENIS I am not “escaping” anything, since the rotation of the planets has little to do with proving whether the earth rotates, which is your task to prove. In fact, the rotation of the planets is quite strange. Mercury hardly rotates at all, only making three rotations per year. Venus rotates in the opposite direction of the other planets. Uranus and Pluto rotate north/south instead of east/west. The ones that do rotate show a marked centrifugal consequence, such that north/south circumferences are thousands of miles shorter than their east/west circumferences (e.g., Jupiter). Conversely, photographs of the earth from space show no such east/west bulges, but a perfectly spherical shape, which gives evidence that there is no rotation. Satellites are also puzzling. Our moon doesn't rotate. Some of the moons of other planets rotate, some don't. In addition, of Jupiter's 16 moons, four go in the opposite direction to the other 12. One of Saturn's moons goes in the opposite direction, and two of Saturn's moons switch orbits every four years. There are many more such anomalies. So, if you are looking for some pattern in the solar system from which you assert that the earth cannot deviate, there is hardly a pattern to rest on. The planets are about as different from one another as trees in a forest.

Be that as it may, you assert that I am claiming “uniqueness for the Earth out of thin air.” Have you read the *Bible* recently, or is this accusation one that you just pulled “out of thin air”? In **Genesis 1** you'll find that the earth was created first, and then the stars and sun were added later to fix times and seasons for the earth, not *vice versa*. Can you tell me any planet in our solar system that even gets one mention in the *Bible*? Or why the earth is called the “footstool” of God (**Is 66:1**)? Or why all the significant locations of space pivot off an earth-centered framework (**Phil 2:10**)? Or why all the universe is reduced to the phrase “heavens and the earth” (**Col 1:16**)? Or why Jesus descended to the lower parts of the earth (**Eph 4:8-9**)? I guess all these logistical references are mere coincidence for you. If you want to accept the teaching of Scientism that the earth is a mere speck of dust floating around in an unending universe, that is

your prerogative. All I can say is that you are short-changing yourself and those you influence, and giving a welcome doormat to the naturalism that man so craves in order to push God into the remote recesses of his mind.

CASE 4. Finding a book from a scientist, or appealing to one in history, who make these assumptions merely violates your rule that "expert" testimony is not acceptable. A person who is publicly called a "scientist" doesn't make his "theory" become "science" because he presents it to the public.

SUNGENIS Again, you didn't read the rules very carefully. It is not I who am limited in this discussion, but you, since you are the one claiming to be able to prove Heliocentrism through science. In accepting our "Challenge," you accepted the challenge to prove your theory, not merely assert it.

CASE Physics for the Earth is as solid as it is for the other planets orbiting the sun. We say the Earth, between Mars and Venus, is simply acting according to the same laws of physics as those two, and the other planets. All of which laws have been DEMONSTRATED. You simply sweep those laws aside from pertaining to the Earth by saying it is "unique", and thus gratuitously exempt it from the demonstrable laws of physics. And when you enter into gratuitous theories to say what "possibly" could be, absurdity after absurdity arises when you look at how your "theory" explains the other planets going around the sun.

SUNGENIS It is obvious that you are not willing to admit that the only thing you have "demonstrated" is mathematics. Unfortunately, for you, it is not the math with which I have a contention, for I have stated very clearly, several times, that the math in both our models is EXACTLY THE SAME. There is not one "law" I have denied. What you have not "demonstrated" is that the math proves heliocentrism and disproves geocentrism. Until you do, you can talk about "absurdities" all you want, but the only thing absurd is that you keep arguing in circles.

CASE Your Web site states, "the so-called laws of physics that are often used to assert its dominance in science are not laws at all, but also unproven theories." This is plainly NOT true. They have proven those laws with demonstration and because they don't go along with your position, you doubt they are demonstrable. That is contrary to the mind of the Church.

SUNGENIS The Church wants truth, so whatever law you demonstrate as truth, the Church will accept, and so will I. As for my quote above, it was referring to the theory of Relativity. Relativity, if that is what you believe, is an unproven theory. That's why they call it a "theory." And being that Relativity was actually an apology to why scientific experiments showed the earth standing still in space, then the burden is on you, not on me. The problem is that those of your persuasion are forced into accepting Relativity, since you have eliminated any point in

space as being non-relative. But in a system with an immobile earth, nothing is relative, since everything can be measured against one stable point – the earth.

CASE Elsewhere you state that the math is the same for both models. This is also NOT true. The only math that fits both is for VISUAL RELATIVE POSITIONING. I had admitted that at the beginning. But I repeat, visuals are only a small part of the actual facts. The physical laws of God's creation include vector forces, mass and momentum that cannot be discerned by visual positioning. You accept the math of the visual positioning because it conforms to your belief that the Earth is motionless. Because all the other demonstrable laws of physics don't fit what you believe, you sweep them aside with the gratuitous assertion that "the earth is unique" so as to exempt the earth from those other laws and the associated math that can prove those laws demonstrable and repeatable. There are no absurdities with heliocentrism because it doesn't try to create a "unique" Earth exempt from the same laws that pertain to the other planets around it.

SUNGENIS I implore you to stop speaking in generalities. This debate is not an exercise in making speeches that may sound good to the uninformed. There are no laws of physics which I deny. I merely deny you the prerogative of using mere theories to prove your contentions of a heliocentric solar system. As it stands, there are no established laws of physics which prove heliocentrism and deny geocentrism. If you have one that does, then let us see it.

As for the math, if you contend that “vector forces, mass and momentum” deny the geocentric model, then show us how that is so. Until then, you are merely sounding off on things about which you apparently know very little.

CASE All the planets have a speed in orbit around the sun in proportion to their size and distance from the sun. And the Earth fits that same proportion for orbital physical science. But you exempt it, and would have to suggest that all those other planets are actually orbiting the sun while the sun is orbiting the Earth daily at about 24 million miles per hour! Absurd.

SUNGENIS Check back on the last post I presented. There you will find that a heliocentric system demands that the sun move around the galaxy at a half million miles per hour, and that the Milky Way galaxy move about 100 times faster than the sun around clusters of other galaxies, and that the outer most galaxies are moving faster than the speed of light. Now that's what I call “absurd”. Thus, it is you who has the problem with exorbitant speeds, since your system DEMANDS these impossible speeds for the stars. What you apparently don't know or are unwilling to admit is that, if you begin with a heliocentric solar system, there is no escape from these exorbitant speeds. This is what I was trying to explain to you in the beginning of this post. You cannot deal with the heliocentric system in a vacuum. Once you adopt the heliocentric system, then you must explain every other motion in the heavens, and they must be explained in accordance with the distances you associate with heliocentrism. Those distances demand much higher speeds for the stars than I have in my system. Moreover, at least in my system the stars don't have to travel those huge speeds themselves, rather, they are carried in an aether medium that satisfies almost all the speed demands.

CASE All the planets rotate on their axes. That means that each sees the sun rise and set just like on earth as though the sun moved. But the earth, between Mars and Venus, is different? That is pure hypothetical assumption that only brings absurdity in its trail.

SUNGENIS I'll remind you that my "Challenge" demanded that you prove heliocentrism, not resort to name-calling and accusations merely because you object to an alternate viewpoint. The fact is, you have proven nothing, except that you don't have any proof.

CASE In short, demonstration is ABOVE literal interpretation of Scripture where it is not of faith. But you violate this. You DISMISS, with a gratuitous "unique" wave of your hand, the physical laws that have been demonstrated, in order to make literal interpretation involving the sun ABOVE that demonstration.

SUNGENIS You haven't "demonstrated" heliocentrism. You've demonstrated hardly anything in this your third try at "proving" heliocentrism. In fact, of all the entries to our challenge, yours is by far the least challenging. I can't think of one argument you've presented that even comes close to proving your point. Instead you resort to accusations that I am dismissing laws of physics, yet true to form, you show no proof for that accusation.

CASE I have seen another challenger mention how earthquakes on earth slow the rotation of the earth by a perceivably small amount that our sensitive instruments can detect now. You answered that person but completely omitted addressing that significant point. Because if you address it, you would have to deny what has been repeatedly demonstrated by scientists nowhere near the earthquake, and you would also have to say that such an earthquake perceivably slows the sun and the whole universe of stars light-years away all at the same time. Absurd. It really just affects the momentum of the rotation of the Earth.

SUNGENIS Earthquakes slowing the rotation of the earth? What proof of this do you have? Please stop making mere assertions without the scientific evidence to support it. Show us the references. Be that as it may, let's just use your assertion for the sake of argument. That would mean that every time there is an earthquake, the earth would be slowed down from its rotation. But wasn't it you who, a few essays ago, was telling me that the forces which would inhibit the free rotation and revolution of the earth in its path were quite minimal, such that in all the years the earth has existed there would be no appreciable decrease of its movement? But now, when it's to your advantage, you claim that even earthquakes can slow that movement. Let's see. There have been hundreds of major earthquakes just in the last few hundred years. If all those earthquakes were slowing down the rotation of the earth, as you claim, then the cumulative effect of all those earthquakes should have changed our sidereal day of 23 hours, 56 minutes, and 4 seconds quite drastically in that time period. But the sidereal day has never decreased, as far back as we have records. The only thing that changes is that the sidereal day can go from 23 hours, 56

minutes, 4 seconds to 24 hours, 0 minutes, and 15 seconds, and back again, depending on the time of the year. It stays right within that envelope, despite all the commotion on earth, including earthquakes. In fact, since, from your perspective, all the earthquakes on earth might indeed inhibit its rotation, it only serves me well to say that the reason earthquakes don't decrease the sidereal day is that the sidereal day is not dependent on the earth rotating, but upon the universe rotating, without deviation, around the earth.

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CASE You admit all the heliocentric physical laws work for all the other planets going around the sun, so you have no business whatsoever to gratuitously EXEMPT the earth from those same demonstrable, natural laws by denying those laws apply to the Earth by the pure invention that it is "unique" among them.

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SUNGENIS No one is "exempting" the earth from any "laws" that the other planets follow. Positioning the earth in the center does absolutely no harm to the "laws" of physics. I follow the same established laws that you do. The only difference is that I put the sun and the planets in a different position than you. For that matter, it is a known fact admitted by all astronomers that, mathematically speaking, we can make any planet in the solar system the center, such that we can develop a working physical model to support it. All the models will follow the same laws of physics. It's not difficult at all to demonstrate. Any computer with the right program can do it. The question is, which one is right? The answer, if we want to be honest about our science, is that we don't know, since it is not possible to go outside the solar system to observe which one is the true center. If you think that a sun-centered solar system is the only possible answer, then you're just fooling yourself.

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CASE We are reminded by the Church, "not to depart from the literal and obvious sense, except only where reason makes it untenable or necessity requires". Reason and necessity tell us clearly that the presence of even one absurdity is enough. And even if a Catholic doesn't know the slightest facts of science or physics, he knows the Church has universally approved the teaching of the heliocentric model as both reasonable and harmless.

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SUNGENIS Where has the Church officially declared that she "universally approves the teaching of the heliocentric model as both reasonable and harmless"? You are merely making assertions without evidence, and that is very close to telling a deliberate falsehood.

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CASE It is rationalistic to fault the Church for Her centuries of permission and approval of books by imprimatur. Imprimaturs participate as a function in the ordinary magisterium of the Church. There is no historical precedent for the entire Catholic Church to not make a condemnation for prevalent harm to the faith ESPECIALLY when that alleged harm was taught to EVERY CATHOLIC in school for generations living and dying in that belief. That would be another absurdity you are implying with your stand.

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SUNGENIS The only thing the Church has officially allowed to be published, according to Pius VII, are those who want to write about the “opinions” of those who hold an alternate cosmology. Other than that the Church has never officially sanctioned the heliocentric viewpoint. If you have such an official statement, then show it to us. Until then, you are left with merely the opinions of bishops who have little authority to decide this issue, especially in light of three popes who have already deemed it “contrary to Scripture.” And once again, you are so ready to assert that the magisterium is acting appropriately on the mere evidence of an imprimatur by a fallible bishop, but are so unwilling to grant the same authority to three popes who made formal edicts condemning the view you espouse. Was the Holy Spirit hiding from the Church in the seventeenth and eighteenth centuries?

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CASE And these absurdities are making you fall into illogic, as when, in regard to *Providentissimus Deus* of 1893, you stated, "Thomas Aquinas believed in geocentrism, not heliocentrism. So it is rather difficult to conclude that Leo is using as proof the very man who did not apply "what sensibly appeared" to geocentrism."

St. Thomas only stated a universal "principle". He did not have the demonstrable scientific facts of later centuries pertaining to heliocentrism to apply it to. Almost 600 years of science is quite substantial between that pope and that Saint.

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SUNGENIS Yes, Thomas Aquinas didn't have “demonstrable scientific facts of later centuries pertaining to heliocentrism,” but neither do you. You have not presented one shred of proof for your contentions, in now this, your third try. At least Thomas paid attention to the Fathers who went before him, and disregarded the Greeks who taught heliocentrism long before Copernicus. You, on the other hand, repudiate the Patristic witnesses, the popes which condemned your view, and the Scriptures which offer not the slightest proof for your cosmology. You're allegiance in these areas is Scientism, not science. True science would make you realize that you can't prove heliocentrism. But it appears that you have decided to cast your whole lot in Scientism's lap, the very people who, for the most part, have a vested interest in dethroning divine revelation in favor of their own pet theories and concoctions.

As it turns out, you have not proven your claims. I hope that after this exchange, you will reconsider those claims, and I pray that God will lead you in that direction.

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AC [not Case] I'd like to submit a second challenge to geocentrism. I believe my first challenge may have been too technical, but this second one hopefully will be much easier to understand.

First, I'll offer your definition of proof called for by the challenge: "By 'proof' we mean that your explanations must be direct, observable, physical, natural, repeatable, unambiguous and comprehensive."

Premise (A1): Newton developed his physical laws, which form the basis of orbital mechanics. These equations include his second law of motion: $F=m*a$ and his law of gravitation: $(\text{Gravitational Force})=G*m1*m2/(\text{radius})^2$.

Premise (A2): Since Newton formulated his laws, they have always been verified by the motion

of objects travelling much slower than the measured speed of light. There has never been an observable case where Newton's laws did not hold for objects travelling much slower than the measured speed of light.

Premise (A3): In order for Newton's laws to correctly predict motion in the solar system, gravitational forces from all massive bodies must be correctly taken into account by scientists. Gravitational force according to Newton is directly related to mass. Gravitational force is also directly related to and varies according to a spacecraft's distance from each of these bodies as seen in $G \cdot m_1 \cdot m_2 / (\text{radius})^2$ from (A1). (These massive bodies include the sun, Earth, moon, planets, etc.) The sum of these gravitational forces equals the "F" in $F = m \cdot a$.

Premise (A4): Scientists send spacecraft (which travel much slower than the measured speed of light), and have done so multiple times, through the solar system using Newton's laws with exact precision. Such spacecraft include *Voyager-2*, *Pioneer-10*, and the *Apollo* moon missions. In other words, the spacecrafts' motion, as described by the " $m \cdot a$ " in $F = m \cdot a$, was correct or true.

Premise (A5): Given (A1), (A2) and since the motion of the spacecrafts were true (A4), then the scientists' calculation of the solar system's bodies' gravitational forces (A3) must also be true.

Conclusion (A): Scientists possess a correct and accurate understanding of each body's gravitational force in relation to the spacecraft and, consequently, a correct understanding of each body's mass.

Premise (B1): Geocentrism places Earth in the center of the solar system, and all other bodies (including the sun) rotate around Earth.

Premise (B2): According to Newton's laws, less massive objects orbit more massive objects.

Premise (B3): If (B1) is true, then (B2) predicts that the Sun is less massive than the Earth.

Premise (B4): But Conclusion (A) is proven true, and scientists understand that the Sun is more massive than the Earth.

Premise (B5): Given (B4), then either geocentrism (B1) is false or Newton's laws (B2) are false.

Conclusion (B): Either the geocentric view is incorrect or Newton's laws are incorrect.

Premise (C1): But (A2) is true.

Premise (C2): Your definition of proof is that "...explanations must be direct, observable, physical, natural, repeatable, unambiguous and comprehensive."

Premise (C3): (C2) defines (A2) as proof that Newton's laws are correct.

Premise (C4): Given (C3) and Conclusion (B), then (B1) is false.

****Update**** Conclusion (C): Geocentrism is false, and Newton's laws are true. Newton laws then correctly predict that Earth orbits the Sun. This clearly and irrefutably disproves geocentrism, and proves that Earth orbits the sun.

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GEO You're missing one thing. Newton's law that smaller bodies revolve around larger bodies is true only in isolated systems in which there is one large body and one small body. (In fact, Newton had problems explaining what would happen if a third body, or even a multiple number of bodies, came between two bodies whose mutual force was originally calculated using

the inverse square law).

But the fact is our universe is not an isolated system. It includes innumerable galaxies. These galaxies directly effect the movement of the sun, which in turn would effect how the sun moves in relation to the earth.

For example, in the heliocentric system to which you hold, you believe the sun is revolving around the Milky Way galaxy at 500,000mph. What is it, in your system of mechanics, that holds the sun in this orbit? Obviously, it is the gravitational balance between the Milky Way and the inertia of the sun, according to Newton's laws. Thus, you would have to admit that the sun's movement is controlled by the stars in the Milky Way.

That being the case, we can also create a geocentric model of the universe. Using Newtonian mechanics, we can construct a mathematical model of the universe such that the earth is at the very center, the sun is in the middle, and the stars are on the rim. If all these bodies are positioned in the exact places they need to be, with the exact masses they need to have, it would result in a system in which the force of the stars carry the sun around a central earth, much like the rim of a spinning bicycle wheel carries the spokes around the axle. This would not be hard to design at all. A good computer could figure out what the proportions of distance and mass would have to be to satisfy both a Geocentric universe and Newtonian mechanics.

You haven't disproved geocentrism. In actuality, you have allowed us to demonstrate once again that the same laws with which you work are the same laws that govern a geocentric universe.

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This next challenge from Hutton Gibson – 15 Mar 03

H Gibson The space probe figures are easily ignored or misunderstood unless interpreted. My explanation should sufficiently support the figures. These were compiled at Tidbinbilla, near Canberra, A.C.T., Australia in 1995 and 1996.

Pioneer-10, 03/03/72; passed Jupiter 12/03/73, escaped solar system 1986

week.....	decl.....	rt.asc.....	earth dist....	variant.....	sun dist.....	variant
39.....	25.8.....	75.2.....	9793.8.....		9844.6	
35.....	25.8.....	75.2.....	9834.3.....	+40.5.....	9814.7.....	-29.9
31.....	25.7.....	75.....	9870.3.....	+36.....	9784.9.....	-29.8
26.....	25.7.....	74.6.....	9887.8.....	+17.5.....	9747.5.....	-37.4
22.....	25.6.....	74.1.....	9868.8.....	-19.....	9717.6.....	-29.9
17.....	25.6.....	73.5.....	9799.6.....	-69.2.....	9680.2.....	-37.4
13.....	25.5.....	73.2.....	9714.0.....	-85.6.....	9650.3.....	-29.9
52.....	25.7.....	73.6.....	9418.3.....	-295.7.....	9553.1.....	-97.2

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R Sungenis Thank you for sharing data of the several space probes. For the sake of brevity and simplicity in this discussion, I have selected the data for only one of the probes, to which I'll confine my explanations as to the fallacy in your thesis.

H Gibson Pioneer-10 went relatively straight, is far beyond influence of the solar system to divert it, and not far enough to have encountered stellar interference. There was certainly no reason for it to do into anything remotely resembling an orbit. It continues on its generally straight path and has the same unmoving stellar background. I conclude from this that the background is equally stationary.

R Sungenis Although that certainly remains a plausible scencario, it cannot be proven. Here is the reason: If, as is true in the Geocentric system, the stars are rotating against an immobile earth, Pioneer-10 is rotating with the stars and thus will appear to be traveling in a straight line toward the stars. The reason that Pioneer-10 would move with the stars is that it is embedded in the same gravitational field that, for example, the sun is embedded as it makes its way around the Milky Way in your heliocentric/cosmological system. In our Geocentric/LeSagean cosmological system it is the aether or ultramundane particles in which all the objects of the universe are embedded and within which gravity is created. Since our model holds that the universe rotates around the earth once per day, hence the aether also rotates around the earth once per day, and thus, all the objects we see from earth are rotating with the aether. Again, the reason you see Pioneer going in a straight line toward the stars from your vantage point on earth is that both the stars and Pioneer are rotating around the earth at the same speed. The differences between Pioneer and the stars would be due to Pioneer's independent movement within the aether, even while it is moving with the aether and the stars.

H Gibson I phoned my contact at Tidbinbilla tracking station on 23 Oct 96. He faxed eight pages of statistics, status of tracking posted every four or five weeks during 1996 and the last week of 1995. I extracted figures which prove geocentrism currently non-existent, and enclose them on a separate sheet. A report from my Australian contact follows:

Please note the three-month gap between this and last year's entries. Please note also in the figures on Pioneer-10 and the Voyagers their steady recession from the sun in comparison with their both greater and less, even minus, recession from earth – the obvious and necessary result of a relatively fixed sun and an orbiting earth.

I put it to the observer that heliocentric theory requires an annual blank spot on each probe as earth passes directly opposite with the sun between us and the probe.

He even had a term for the blank spot – “superior conjunction” – and volunteered a near date for the next superior conjunction involving Galileo. I include figures on the orbiting probes for comparison to demonstrate that no one can have it both ways when attempting to argue geocentric theory. The report continues:

Astronomers locate objects in a celestial grid resembling latitude and longitude. Each star, planet, satellite, and space probe is fixed by use of these coordinates, declination and right ascension.

These vary almost imperceptibly in the case of stars, constellations, and galaxies – the greater the radio-measured distance the less variation, which is partially accounted for by the semi-annual variation in orbit of the terrestrial base of observation by the diameter of the orbit. These figures are given in degrees, and the distances are given in millions of kilometers. I list first the three probes sent out in a single direction; then, for contrast, several which have gone into solar orbit. You will note far greater variations in the latter.

Please note that in the cases of Pioneer-10 and Voyagers-1 and -2 their increase in distance from the sun is constant, but their radio-beam-measured distance from earth increases and decreases in regular patterns. As Pioneer-10 receded all through the period covered, the earth began to catch up with the probe. The earth moves faster than the probe's constant recession. The probe cannot back up, nor change course.

Note also that Voyager-1, heading off in a different direction, came in Week-35 to an almost even distance from sun and earth, and over the next four weeks began to recede from the earth faster than from the sun. So the earth moved further around its orbit, back toward the probe's superior conjunction. Or the probe travels at different speeds simultaneously?

R Sungenis But this doesn't prove that the earth is revolving around the sun. All it proves is that, at certain times, the distance of Pioneer from the earth is greater and has more variation than Pioneer from the sun. In the geocentric system this is easily explained by understanding that, as the sun revolves around the earth, the whole universe is moving with the sun, with the earth as the center. Hence, any objects within the space between the earth and the rest of the universe are all going to move by the same proportions as the sun.

In order to illustrate this, I have made four diagrams of an earth-centered system which incorporates the figures from weeks 1, 13, 26 and 39 from your chart of Pioneer-10's distances. The illustrations are crude and certainly not to scale, but they will give you an idea of how your numbers can be explained in the Geocentric system. Week 52 was not included since it does not seem to fit the pattern established in the other numbers, since week 52's numbers are less than all the other numbers, but should be more due to the passage of 13 additional weeks from week 39.

However, I cannot vouch for the accuracy of your numbers for Pioneer-10. In fact, I have no way of knowing if they are accurate. Hence, I can only accommodate you by using the numbers you provide, but I only do so only in principle in order to give a rough estimate of how the numbers would fit into the Geocentric model.

Nevertheless, this brings up an interesting point of contention. How is it that your man in Australia is able to chart the distance from the sun to the satellite? Surely there is no probe on the sun for him to use. Hence, he must arrive at his figures for the sun's distance away from Pioneer by using some type of triangulation, but that involves certain assumptions that I don't think I'm required to accept.

In any case, here are the diagrams, which begin on the next page:

Diagram 1

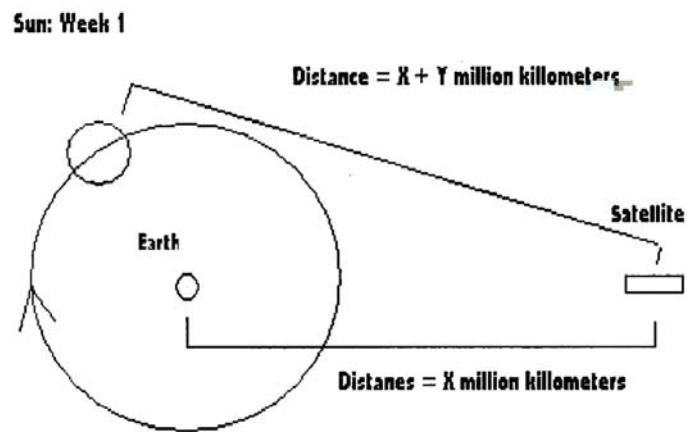
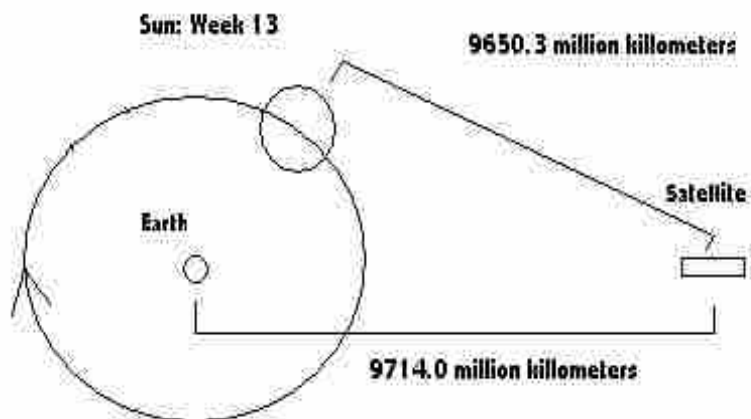
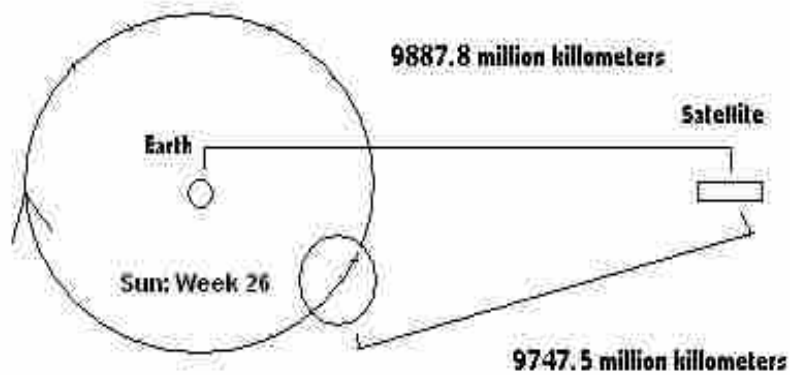


Diagram 2



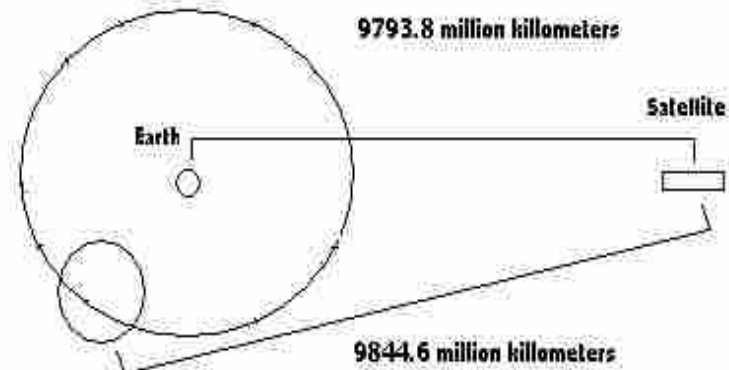
This diagram corresponds to the numbers for week 13 of Pioneer 10. After week 13, the satellite is continually moving away from the sun and earth on its own course and speed, but it is also captured in the same aether (or gravitational field in your system) as the sun, and thus will also move laterally with the sun, back and forth.

Diagram 3



At week 26, the satellite has increased its distance from earth by 173.8 mkm, and from the sun by 97.2 mkm. The 76.6 difference is because the sun and satellite moving laterally with the aether. The difference of 9887.8 mkm and 9747.5 is 140.3 mkm, which is roughly the known distance between sun and earth. It would be closer to 147 if parallel.

Diagram 4



Sun: Week 39 The satellite is now 94 mkm closer to earth because the rotation of the aether has shifted both the sun and the satellite to the left of the diagram. But the satellite is now 97 mkm further from the sun since the sun is moving away from the satellite as it nears the farther side of its orbit around the earth.

H Gibson Let me again press the point that three tracking stations are needed to track down probes going in a nearly straight line away from the earth. These probes rise and set like the sun and the respective constellation always behind each. If the earth does not rotate, only one tracking station, located near the departure point, would suffice, because the probe would never “set.”

R Sungenis The probes are going to move with the stars because they are embedded in the aether the same as every other body in space. They appear to rise and set to you because they are moving with the sun and stars, while the earth remains immobile.

H Gibson If the sun orbited the earth (at 365 x earth-orbit speed) it could not avoid traveling also around the moon. At any point on the earth from which the moon was visible we would then see all phases of the moon each calendar day. On the occasion of each eclipse of the sun there would occur an eclipse of the moon on the opposite side of the earth within fifteen hours of the first eclipse. Unlike the space probe proof, this is undemonstrable because no man can move stars and planets.

R Sungenis This would not be the case in a Geocentric system, since the sun and the moon are both moving around the earth in the aether. Their respective distance from each other, and the angle they form with each other, is going to be the same as in your system. In other words, as the sun moves around the earth in 24 hours, the moon is also moving around the earth in 24 hours, and the sun and the moon are keeping the same angular distance from each other as in the heliocentric system. Thus, the phases of the moon’s light are going to be exactly the same as in your system.

Let me illustrate with some diagrams:

Diagram 5

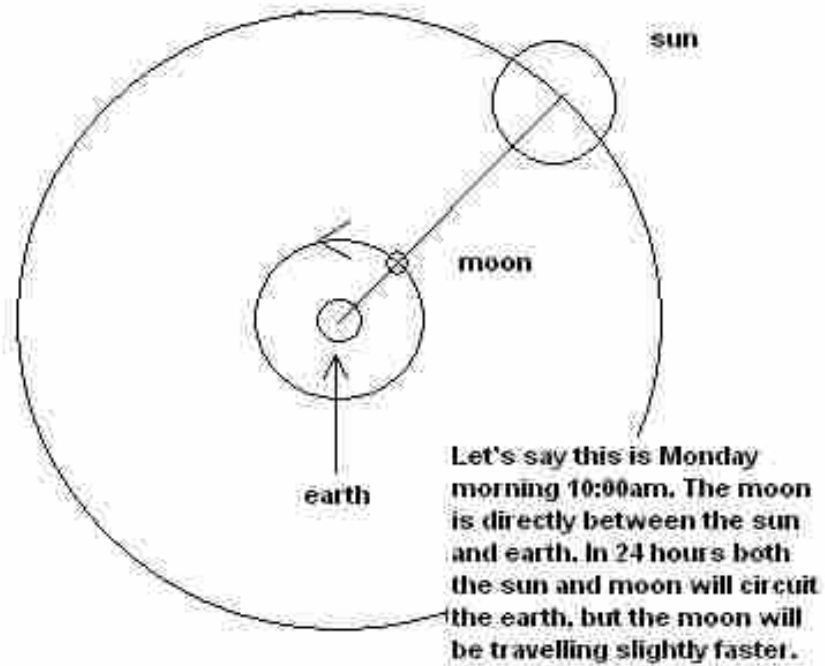
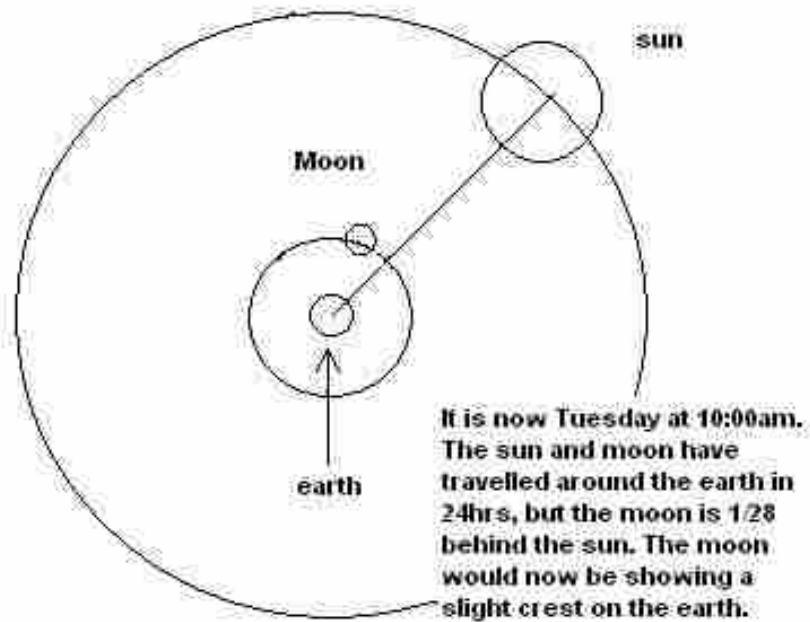


Diagram 6



H Gibson My first argument (Mercury and Venus have yet to orbit the earth) constitutes scientific proof that geocentricity is false.

R Sungenis Mercury and Venus do not orbit the earth. They orbit the sun in the Geocentric system. The sun, with the planets, revolve around the earth.

H Gibson A gentleman in Pennsylvania requested my proof, for \$10,000. So I forwarded my figures and a copy of the fax from which I had extrapolated them. I quote the disappointing reply:

The offer “insists that empirical scientific observation,” which is impossible, not political bluffery, is the basis of the proof needed. What you are suggesting is what I will term “space navigation”. I will take the lazy way out and accept all your data and assertions about how space probes are tracked and guided to their destinations, except for one thing. You have assumed that the earth is moving around the sun and rotating on its axis. If correct, the distance variations and diurnal tracking of the probes would occur as you say they do. But exactly the same phenomena would be observed if *the rest-of-the-universe, rather than the earth, were moving, that is, rotating around the earth daily and orbiting it annually* (the combination motion leading to the precession of the equinoxes, etc). It is a clear case of the relative motion problem in determining what is moving and what, if anything, is not.

The geocentric position is that the earth is stationary and everything else, *en masse*, goes around it daily! So look back to the phrase I have italicized. Everything goes around us daily but only rotates. Or does it merely appear so to the uninformed astronomer? How will rotation (spinning on its axis) get sun, moon, or stars around us daily? Either all these bodies orbit the earth daily or the earth rotates. This relative motion – which we don’t ‘get’ – seems invented to slow everything down to possible speed so we can comprehend it. Is comprehension necessary?

R Sungenis You have misunderstood him (or more apparent is that he wasn’t very clear). He is not saying that the bodies spin on their axis, nor that such spinning would in any way explain Geocentrism. He is referring, rather, to the same thing I illustrated in Diagrams 5 and 6, wherein the sun and the moon rotate daily around the earth with the rest of the universe, but that both the sun and the moon have an independent orbit around the earth such that on each day of the year the sun and moon will be in a different place in the sky relative to the stars. When one adds all these days up, the sun and moon make a circular path through the stars each year, which in the Geocentric system is understood as their orbit around the earth. Incidentally, it seems no coincidence that the moon more or less follows the path of the sun through the stars, and rises and sets roughly in the same place as the sun, only about 50 minutes later each night.

H Gibson I assumed the earth’s motion from the established fact that it obviously catches these probes half the year and then recedes from them at the same rate the other half. The three single direction probes lie in different directions, and their superior conjunctions occur at different times. I included the figures on the orbiting probes (one of them, Galileo, orbiting Jupiter, the rest orbiting the sun, not the earth) to show how differently they are observed from our three tracking points.

=====

R Sungenis All the probe figures you gave (Pioneer, Voyager, Galileo) can be explained using the models that I have provided above. Three tracking posts are necessary in the same way that three Global Positioning Satellites are needed to triangulate a specific spot on earth.

=====

H Gibson Professional astronomers time their orbits and measure their distances. It is all very well to say that observed phenomena would be identical if the earth stood still and everything else moved, but this is impossible not only to prove but to be.

The orbiting probes orbit, as intended. But the single direction probes continue in their original directions. They get no closer to each other. No force removes them from their straight courses. They recede from the sun at constant speeds toward the same respective constellations year after year. Do I hear a reproof that I assume that constellations are relatively fixed?

=====

R Sungenis No, as I said above, the probes and the stars are all rotating around the earth. The earth is the only thing that is immobile.

=====

H Gibson Let us skip lightly past the annual superior conjunction of each zodiacal constellation, though it would seem to fit the annual orbit of the earth around the sun far more satisfactorily than the daily orbit of the sun around the earth, and concentrate on the movement of Pioneer-10.

It [Pioneer-10] recedes from the sun and on average from the earth at a weekly rate of more than seven million kilometers. Suppose the earth is stationary and Pioneer-10 moves daily nearly 63,000,000,000 kilometers in orbit around the earth in addition to its undoubted radio-beam-measured distal motion.

So in 1984, when Pioneer-10 was a mere five billion kilometers away, its daily orbit was only 31,500,000,000 kilometers. In 1978 it did well to orbit 16 billion kilometers daily. But give it another two dozen years and it will double its present orbital speed to about 125,000,000,000 kilometers daily – nearly eight times the speed of light! It already goes nearly four times light speed. Can they really track it? What accelerates it?

I rest my case. You may phone and-or FAX me, as I do not have on-line PC service.

=====

R Sungenis In the Geocentric system we account for the high speeds necessary to keep the sun and stars rotating around the earth by noting that all the heavenly bodies are embedded in the aether. Contrary to Einstein's reluctance to accept an aether-based universe, its existence was proven by Sagnac (1913), Michelson-Gale (1925), Dalton Miller (1933) and Herbert Ives (1943). Einstein did his best to ignore each of these scientists, and they are still ignored today. Instead he opted for Relativity. But you must realize that Einstein's theory of Relativity was actually a scientific apology for the fact that the Michelson-Morley experiment of 1887 found that the earth was standing still in space. Einstein's biographer says as much. He writes:

Michelson and Morley...The problem which now faced science was considerable. For there seemed to be

only three alternatives. The first was that the earth was standing still, which meant scuttling the whole Copernican theory and was unthinkable. (*Einstein: Life and Times*, p. 109-110)

If one depends on Relativity (which is another way of saying that the earth is not immobile) than it will be necessary to have exorbitant speeds for the stars, some supposedly receding faster than the speed of light, which, ironically, contradicts Einstein's very theory. The Geocentrist realizes that the only way to account for the necessary speeds is to understand that the aether is the thing doing most of the work in getting the universe to rotate. At Planck dimensions, the aether could easily rotate in 24 hours. In fact, it would need to rotate that fast in order to create enough centrifugal force to stop the universe from collapsing in on itself due to gravitation attraction. The only way conventional science deals with this anomaly is by creating Dark Matter, which they say comprises 99% of the mass in space, an amount which is needed to stop the universe from either contracting or expanding into oblivion. But no one has seen any Dark Matter. It is invented to serve as a fudge factor, just as Einstein's "Cosmological Constant" did years ago.

By the way, I thought you might be interested in the words of someone who worked with NASA in flight mechanics. Regarding the heliocentric/geocentric debate, and in reference to my work in geocentrism, here is what he told one of my critics:

As a former Robotics Analyst that worked in MOD (Mission Operations Directorate) at NASA, I can say that I've dialogued with folks in Propulsion and Flight Mechanics, and many agree that there would be no way to objectively prove either side (Relativity vs. Geocentrism) by science, logic, or math.

I'll leave you with that to ponder.

Thank you, Mr. Gibson, for your entry to our challenge. As you can see, you have not proven that the earth goes around the sun. I hope God will give you wisdom and patience as you contemplate this issue.

Please forward my congratulations to your son, Mel, on the film he is making of Jesus' passion. Please give him my commendations and let him know that we are praying for him and for the success of his current production.

God be with you.

Robert Sungenis, M.A. (Ph.D. cd)
 President of Catholic Apologetics International
 21 Mar 03

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W Savina If the Sun is going around the Earth, how fast is it going in miles per hour? How far away is the Sun from the Earth ?

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R Sungenis That depends on what you mean. On the one hand, geocentrism requires the sun to go around the earth once per day. If the sun is 93 million miles away, this means the sun would have to travel 584 million miles per day, or 24 million miles per hour. A heliocentrist might object that such speed is impossible, since it is 1/27th the speed of light. But this objection can be answered in two ways:

(1) Heliocentric science, considering that it must incorporate the sun and earth in a universe that is in a constant movement of expansion, requires some stars to be receding from earth faster than the speed of light. That is why Hubble's "Constant" has had to be revised from time to time, since they find stars that are farther away than previously thought, but if they are so far away, then they must be traveling faster than light. (Obviously, there is something wrong with a theory which says that stars recede faster than light if the same theory says something cannot go faster than light). The upshot is this: the heliocentric system has just as much, if not more, of a problem with the required speed of heavenly bodies as the geocentric system does.

(2) In the geocentric system, the LeSagean concept of gravity is usually incorporated. This concept holds that there are ultramundane corpuscles, or an aether, pervading the whole universe. The existence of aether has already been proven by numerous scientific experiments (Sagnac in 1913, Michelson-Morley in 1925, Dalton Miller in 1933, Herbert Ives in 1943, *et al*) but Einsteinian theorists (the very ones who tell us that some stars are receding faster than the speed of light) ignore this evidence, since it denies Relativity theory and supports an immobile earth.

As it stands, the sun is embedded in the aether, as are all the heavenly bodies. This aether rotates around the earth once per day. The aether wind crossing the earth has been shown by the same experiments mentioned above. Thus, in the Geocentric model, the aether, carrying the whole universe, is the thing rotating around the earth each day, and as it rotates, it carries the stars and sun with it. The sun may have a little motion that is independent of the aether, but the aether is doing most of the movement around the earth.

This means that the sun, relative to the aether, is not moving at 24 million miles per hour, but is hardly moving at all. The independent movement the sun makes relative to the aether, however, will allow it to transcribe a path through the zodiac each year. Hence, as the aether rotates once per day around the earth, the sun rotates with it, and the sun will come back to almost the same position each day, except that it will be 1/365th ahead of where it was the day before.

As for the rest of the stars, they also rotate with the aether, and thus they are not moving at exorbitant speeds, rather, the aether is rotating. Since the aether is at Planck dimensions, it can withstand such speeds.

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W Savina When did the dinosaurs die off ?

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R Sungenis Because all the evidence shows that the universe and the earth are quite young,

the dinosaurs existed no longer than 10,000 years ago, and most likely died after the climate changed due to the cataclysm of the Great Flood recorded in *Genesis 7-9*. It is a fact that dinosaur remains and tracks have been found right along side human remains and tracks.

K Cole I'd like to address your response to my challenge. I will focus on your objection to my proof, which was in the first two paragraphs of your response. It specifically challenges Premise (B2) in my proof:

R Sungenis You're missing one thing. Newton's law that smaller bodies revolve around larger bodies is true only in isolated systems in which there is one large body and one small body. (In fact, Newton had problems explaining what would happen if a third body, or even a multiple number of bodies, came between two bodies whose mutual force was originally calculated using the inverse square law).

But the fact is our universe is not an isolated system. It includes innumerable galaxies. These galaxies directly effect the movement of the sun, which in turn would effect how the sun moves in relation to the earth.

K Cole No. You are misunderstanding Newton's laws. Premise (A1) outlined two of Newton's laws: his Second Law of Motion: $F=m*a$ and his Universal Law of Gravitation: $(\text{Gravitational Force})=G*m_1*m_2/(\text{radius})^2$. I would like to clarify that these laws alone state that more massive objects revolve around less massive objects. When you stated, "Newton's law that smaller bodies revolve around larger bodies..." you implied that Newton had an orbital law distinct from the two in Premise (A1).

In this discussion of orbital mechanics, Newton's Second Law and Universal Law of Gravitation apply to everything that has mass, without exception. There are no special cases in which they do not hold. It is misleading to say that they only apply to "isolated" systems, since the universe itself can be considered an isolated system. Additionally, these laws apply to any system, regardless of number of bodies it contains. It can have two or three bodies, or even nine or "N" number of bodies.

When you say that Premise (A1) "...is true only in isolated systems in which there is one large body and one small body," you are incorrectly referring to the classic "N-body problem."

The "N-body problem" addresses the fact that every body exerts a gravitational force on every other body in a given system. All these bodies are moving and changing their forces on each other. Once you have more than three bodies (or "N" bodies) in a system, it gets to be a headache trying to predict where any one body will be and how it is moving at some point in the future, and calculations get complex and messy, rather than elegant and clean.

Here's how the "N-body problem" would apply to our discussion. If you sat down to calculate the motion of the solar system, say 100 years from now, it could take you eons to come up with a solution. But let's say you wanted to stop before that. The longer you keep calculating, the more accurate a solution you will get. But at no point between now and the eons it would take to find a solution would you calculate the sun to be orbiting the earth. The underlying Newtonian physics

that the N-body problem assumes will never allow it. Which means that my Premise (B2) is not overturned for any number of bodies in the system.

Regardless of the N-body problem, you can get an extremely accurate idea of the motion of the solar system in the future and there are a couple of good practical ways to do it. One is to just let a computer handle the messy calculations for you, and the other is to forget about factoring in bodies that exert a negligible force.

Some excellent examples of scientists doing this are: 1) The motion of Jupiter's moons around Jupiter. This is a wonderful example of how Newton's laws work, and how the N-body problem is solved. In this case, Jupiter has a whopping three dozen moons! That's four times as many bodies as the solar system. Yet Newton's laws hold perfectly (including less massive objects orbiting more massive) and computers can accurately predict the motion of each. This is verified by visual telescopes, radio telescopes, and we can even watch movies of the moons orbiting!

2) The same applied to Saturn's two dozen moons.

3) The case of spacecraft of Premise (A4). They performed perfectly using Newton's Laws and in solving the N-body problem. So your objection has no bearing on the validity of my Premise (B2). I will therefore reassert my proof. As it stands, geocentrism is false and I believe I have won your challenge. I appreciate your honest response.

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R Sungenis 2: When I used the "N-body" problem, I wasn't doing so to deny any of Newton's laws. I was only posing the problem to you to show just how complicated it is to figure out how Newton's laws are distributed when three or more bodies are involved. Nevertheless, perhaps I didn't make myself clear, so let me try to explain from a different angle.

From the heliocentric perspective, I'm sure you would agree that the sun is a smaller body than the conglomeration of stars at the center of the Milky Way. That being the case, you would have to agree that the sun's movement is dependent on the force of gravity emanating from the central core of the Milky Way. In your system, the force of those stars is what keeps the sun revolving around the Milky Way to the tune of 500,000 mph. Otherwise, the sun would go streaming off into oblivion.

Since that principle is true in your heliocentric system, let's put the same principle to use in the geocentric system. Let's start out by saying that the earth is the center of the universe, the sun is 93 million miles away, and the stars are light years away. Now, you would have to agree that, since the Milky Way controls the movement of the sun in a heliocentric system, it would also have to control the sun in the geocentric system, for the Milky Way, in both the heliocentric and geocentric system, would exert the same force on the sun.

Now, imagine that the earth doesn't exist. Imagine that the center of the universe in the above system is just empty space. Would it be possible to construct a universe in which the sun is 93 million miles from the center, and the stars light-years from the center, and have both the sun and the stars revolve around that center point? You would have to agree that the answer is YES. The sun and the stars could be positioned at the precise distances needed so that the centrifugal and gravitational forces from the stars and the sun would balance and thus allow for that kind of universe to exist. To help, a computer could be used to figure out just what kind of masses and distances would be needed to make this model work, and it will work, based on Newton's laws.

Let's develop the picture a little more. The sphere of stars around the center point fill the entire surface area of the sphere. If we imagine the universe as a big ball, there are stars on the top, bottom, and every where in-between on the surface of the sphere, and in various layers beneath the surface. Thus, the force of gravity from the top to the bottom, and all around the sphere (if the stars are placed correctly), are going to offset each other. They could be placed in such a way where the force of gravity is zero, or almost zero, at the center of the sphere.

In fact, there was a study done at Cal Tech about 25 years ago that discovered just that. They had calculated all the known forces in the universe and found that they all canceled each other, but they had one problem – the earth was in the center of the cancellations! It is the same thing that Varshni found in 1975 when he measured all the distances of the 348 known Quasars. He found that they were situated in concentric spheres, and the earth was at the center of each sphere!

So if all the gravitational forces, according to Newton's laws, are offsetting each other, that doesn't leave too much of a problem in finding just the right balance of forces in that sphere of stars to place the sun at such a point where it was controlled just enough to have it go around the central point. Again, if you know physics, you would have to agree that such a scenario is indeed possible, and a computer could be used to figure out the needed dimensions. If the sun is 93 million miles off-center, then it will require a certain mass and a certain speed to be given to the sun in order to keep it in balance between the sphere of stars that surround it.

Now, after all that is done, instead of having nothing at the center, put the earth in the center. The same principle is going to hold, although a slight adjustment to the distance of the sun from the center will be needed in order to compensate for the mass of the earth. All of Newton's laws would be obeyed.

Thus, as you can see, Newton's laws don't disprove a geocentric system, rather, all one need to do is find the right configuration of masses and forces and Newton's law will work quite easily in the geocentric system.

Thank you for your submission.

Robert Sungenis
President of Catholic Apologetics Intl.
24 Mar 03

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M Healy I have no illusions about proving heliocentrism and winning the thousand dollars – I'm not a scientist and my knowledge of science is too limited to enable me to comment on all the factors involved. I am, however, curious about certain points:

1) You mention in some of your rebuttals that NASA uses a geocentric model when making the calculations to launch satellites and space probes. Is this true? If so, how well known is this?

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R Sungenis Yes, it is true. I have a letter from them stating so. At other times I have asked them, they have refused to write back. As you can guess, it is not well know in public circles that NASA uses a fixed-earth to make their calculations.

M Healy 2) I was under the impression that the heliocentric model can be used to calculate when Earth and Mars (or Earth and any other planet) come closest to one another in their respective orbits around the sun. If so, would this not constitute evidence for the heliocentric model – or at least show that the math is not the same for both models? I, for one, don't see how (in this instance) the math could be the same – after all, assuming one body is stationary and the other in motion is not the same as assuming that both are in motion.

=====

R Sungenis If I said that $2 + 2 = 4$ but you said $3 + 1 = 4$, would those two expressions be equivalent? I'm sure you would agree that they would indeed be equivalent. Let's say that $2 + 2$ represented two bodies in motion, but $3 + 1$ represented one body in motion against a stationary body. As you can see, the left side of the equation will be different, since you have different things taking place. But when all the motions are added up, they will still equal 4, and thus the two systems will provide the same result.

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M Healy 3) Haven't the space probes we've sent out gathered any information that would confirm either the heliocentric or the geocentric model? We're not talking completely blind in this debate, after all, and it seems to me that the space probes and Mars robots must have gleaned something that would point to the actual structure of the solar system.

=====

R Sungenis No, space probes cannot prove the heliocentric model. One of the reasons is that if everything is moving in the solar system (as the heliocentrist claims) then there is no standard from which to measure the rate of movement. Imagine yourself in a room with 20 people moving around trying to determine the center point of their movement. It would be impossible, since the center would keep moving in relation to how the people are moving. The only way you could make real determinations is if one person in the room did not move. That person would be the center, and each person could then measure how far he was from that center person. Without that stationary person, the center would be arbitrary.

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M Healy 4) We all know how the heliocentric model explains the seasons of the year: Since the earth is “tilted” on its axis, one hemisphere is tilted toward the sun during half the earth's orbital period and the other during the other half. The half tilted toward the sun at any given time experiences spring and summer while the other half experiences autumn and winter. It is simple and elegant and accounts for the observations.

How does a geocentric model account for the seasons? It would seem (to me, at least) that if the earth were stationary, it would have more uniform climatic conditions (e.g., summer in both northern and southern hemispheres at one and the same time).

Thank you for your time.

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R Sungenis Instead of the earth tilting 23 degrees, the plane of the sun's annual orbital precession tilts 23 degrees. This is covered in one of our geocentric challenge posts.

Thanks for your questions.

Robert Sungenis
President of Catholic Apologetics Intl.
24 Mar 03

NOTE Although the foregoing represents an apparent on-going series of challenges against geocentricity, the providers of this single file containing most of the postings, to date, will not further add to this single file with subsequent challenges. It is felt that this file contains enough of the major scientific aspects of the geocentricity *vs* acentricity [heliocentricity] controversy to let the reader know that, since neither system proposed for “how the heavens go” is proven or provable by empirical science, what inerrant Scripture has to say about it is the final arbiter in the matter. Photocopies of this compilation are available for \$15 [pp] from origins@ev1.net

The person contending there is no empirical proof that earth moves [orbits or rotates] is the same person throughout these discussions – Robert Sungenis.
He may be contacted by e-mail..... cairomeo@aol.com

These exchanges were actual postings [2002-2003] on a website.
For further info about that website, contact R Sungenis.

March 2003