

Response to Danny Faulkner

From Robert Sungenis

Part 2

The Rise of the Modern Geocentric Theory Movement

by Dr. Danny R. Faulkner on September 4, 2020

<https://answersingenesis.org/astronomy/rise-of-modern-geocentric-theory-movement/>

D. Faulkner: In a previous article, I wrote about the history and background of geocentrism. In this article, I continue with the rise of the modern geocentric movement in the late 20th century. The modern geocentric theory movement appears to have begun with Walter van der Kamp (1913–1998). It's not clear when van der Kamp became convinced of geocentrism, but in 1967 he circulated a paper on the subject among a few Christians. In it, he argued that Galileo had not actually disproved geocentrism and that no subsequent science had either. In 1968, van der Kamp published his manuscript in a booklet entitled *The Heart of the Matter*. This was followed by another booklet, *Airy Reconsidered*, in 1970. Van der Kamp soon formed the Tychonian Society and began publishing *Bulletins of the Tychonian Society*.

In 1976, Gerardus Bouw, who has a PhD in astronomy, learned of van der Kamp's activities and quickly became convinced that the Bible teaches geocentrism. His first article in the *Bulletins of the Tychonian Society* appeared the same year. Bouw soon became the most prominent geocentrist, eventually assuming leadership of the Tychonic Society. Later, the Tychonic Society was renamed the Association of Biblical Astronomy, and its publication was rechristened *The Biblical Astronomer*. Bouw has attempted to distance what he believes from other forms of geocentrism, particularly those of the past, by rebranding his version as "geocentricity." However, I see no need to muck things up with a new term when the old one suffices, which is why I refuse to use Bouw's term. Bouw has published at least two books about geocentrism. In the past few years, it appears that Bouw is less active, perhaps due to his age. It is not clear if there is a replacement for Bouw as a leader of the geocentric movement.

While this geocentric movement has a supposed biblical basis, it is worth noting that, also during the mid-1970s, there was a brief, non-Christian version of geocentrism. An informal group of physicists called the Defenders of the Geocentric Universe (DOTGU) circulated the short-lived publication, *The Braheian Debater*. They appear to have been motivated by being sticklers about what physics technically reveals about motion. DOTGU correctly maintained that one could not rule out geocentrism, that one could construct physics within a geocentric model, and science could not positively disprove such a model. This gets back to a point in my previous article of what a tricky thing motion is, and thus the necessity of assuming something about the nature of motion prior to embarking upon physics in a formal way. This also seems to have been the point that van der Kamp was trying to make a decade earlier, albeit not as elegantly. However, unlike

van der Kamp and Bouw, DOTGU did not appear to be seriously suggesting that geocentrism was true. Rather, their efforts seemed to have been a mere academic exercise. This lack of conviction probably explains why DOTGU and The Braheian Debater folded after a couple of years while van der Kamp, Bouw, and their disciples have continued.

R. Sungenis: Although some may not have noticed, Danny passes rather quickly over the fact that geocentrism cannot be, and has not been, disproven by modern science. This is a stark admission from the get-go and one that has dire implications for Danny's position. As one of Einstein's colleagues said a few years ago:

...we can't feel our motion through space, nor has any physical experiment ever proved that the Earth actually is in motion.

The reality is, however, that Danny and his colleagues act as if geocentrism has been disproven and that heliocentrism has been proven beyond the shadow of a doubt, despite Danny's problem about "what a tricky thing motion is." If Danny would just admit this astounding fact instead of trying to fight geocentrists tooth and nail, it wouldn't be so bad. Danny, like many popular scientists, portrays to the public that he has proofs (like the ones he noted in his Part 1, such as stellar parallax, stellar aberration, the Doppler effect) but the sad fact is, Danny knows better, or should know better, than to try to pass off these phenomena as proof. If he doesn't know better then he is not competent to handle this subject. Any competent geocentrist who sees Danny's alleged proofs will conclude that Danny is merely grandstanding. But Danny persists because he needs at least some fodder to throw to his constituents to satisfy them.

D. Faulkner: Perhaps the most noticed geocentrist today is Robert Sungenis. Sungenis has an interesting past. He was raised Roman Catholic, but as a young man he converted to Protestantism. Sungenis graduated from Westminster Theological Seminary in 1982, and for the next decade was a proponent of Protestant and Reformed theology. But in 1992, Sungenis converted back to Roman Catholicism and since has criticized foundational beliefs of the Reformation. Around 2002, Sungenis read Bouw's book *Geocentricity: The Biblical Cosmology* and became an advocate for geocentrism a few years later. In 2007, Sungenis, along with Robert J. Bennett, published the book *Galileo Was Wrong*. Sungenis operates a website by the same name. In 2014, Sungenis and Rick Delano produced the documentary *The Principle*, which was narrated by actress Kate Mulgrew and featured several prominent physicists, such as Lawrence Krauss. After the documentary was released, Krauss, Mulgrew, and others complained that Sungenis had misled them about the direction the documentary would take, and said they never would have been a part of the production had they known its true intent.

R. Sungenis: Why doesn't Danny even mention our side of the story? We've put it all over *The Principle* website (www.theprinciplemovie.com). Our participants did know. The movie was about the scientific evidence showing the ongoing demise of the Copernican Principle. They all knew so because we told them directly. No one was tricked. Everyone was told it was a scientific documentary about the demise of Copernican cosmology. Geocentrism was not mentioned in the contract, just as heliocentrism, or acentrism, or the Big Bang, or the Multiverse, or String theory, or the Steady state theory, or hologram theory, or any other theory were not mentioned. To say anymore in the contract would be to compromise the film, since the film sought for honest and objective answers from the participants, not couched or biased answers formed from a prejudice against other views. Hence it had to be only in the actual interview that the participants would be challenged with alternative views to theirs and thus they could

answer based on questions they were asked of other views of cosmology. This is why each participant, at some point in the interview, would be presented with a geocentric alternative so that they could form their opinions based on the scientific facts brought to them during the interview and not on knee jerk reactions from prejudice.

As such, the participants were also presented with the views of the Big Bang, the Multiverse, String theory, Steady state theory, quantum theory, and even hologram theory. Each of the participants then gave their opinion on each theory without having previous knowledge of the way other participants had answered the questions about each theory. For example, George Ellis did not believe the Multiverse theory was correct, whereas Max Tegmark and Bernard Carr thought it was science's greatest achievement. Ron Hatch disagreed with all the Einstein-holding participants, while Julian Barbour was against all those not admitting to Machian mechanics. Michio Kaku was the only one to admit to the problem of universal expansion, while others did not even mention the problem. Whatever the answers, the goal of the movie was to give each cosmological view a place at the table to tell their story, which is what any fair documentary should do.

Geocentrism is just one out of many views of the universe and it has been around a long time. Although much later some critics didn't like that the producers of *The Principle* were giving geocentrism a voice, the irony is that it was because of at least two of the six mainstream physicists in *The Principle*, Julian Barbour and Laurence Krauss, who are two of the most respected physicists in the world, that started us out in our "geocentric" research in 2004 that finally became the movie, *The Principle*, ten years later.

Barbour had been pointing out the flaws in Newtonian physics for many years as well as praising its replacement, Machian physics. It came to a point in which Barbour said this resigning statement,

"Thus, even now, three and a half centuries after Galileo's condemnation by the Inquisition, it is still remarkably difficult to say categorically whether the earth moves, and, if so, in what particular sense."¹

As for Dr. Krauss, he went even further. He made an astounding statement in *The Edge* magazine of 2006 defending the possibility of a geocentric universe:

"But when you look at CMB map, you also see that the structure that is observed, is in fact, in a weird way, correlated with the plane of the earth around the sun. Is this Copernicus coming back to haunt us? That's crazy. We're looking out at the whole universe. There's no way there should be a correlation of structure with our motion of the earth around the sun — the plane of the earth around the sun — the ecliptic. That would say we are truly the center of the universe."²

The new results are either telling us that all of science is wrong and we're the center of the universe, or maybe the data is incorrect, or maybe it's telling us there's something weird about the microwave background results and that maybe, maybe there's something wrong with our theories on the larger scales. And of course as a theorist I'm certainly hoping it's the latter,

¹ Julian Barbour, *Absolute or Relative Motion*, Cambridge University Press, 1989, p. 226.

² "The Energy of Empty Space is not Zero," *The Edge*, 2006. <https://www.edge.org/conversation/the-energy-of-empty-space-that-isn-39t-zero>

because I want theory to be wrong, not right, because if it's wrong there's still work left for the rest of us.

If the cosmic radiation alignments that put the Earth in the center of the universe is the honest truth, then why in the world would Dr. Krauss not say so, even against his own Big Bang Copernican universe?

What was most surprising to us was, the more research we did, the more scientists we found who were saying the same thing as Krauss and Barbour, most of which we could not fit into the movie due to 90-minute time constraints for a theatrical release, as well as the task of getting them to remark on their geocentric findings on a Hollywood camera as opposed to scientific journals where scientists only communicate with scientists.

Despite the evidence that Dr. Krauss and the others admitted on the plausibility for a geocentric universe, the mainstream media refused to give it any credence, no matter how convincing the evidence was from the experts.

In the end, however, the media's bias actually helped prove *The Principle's* point by showing the Copernican Principle rules virtually all of modern science and they will not allow a non-Copernican theory even a place at the discussion table.

But it was our goal, obviously, to give everyone a place at the table, and let the audience make its own decision. That endeavor cost our company, Stellar Motion Pictures, LLC, about 2 million dollars. We knew going in that if you want to play a high stakes game, you needed something close to high stakes money.

Our prior research into the admissions of a geocentric universe from some of the world's most popular physicists took us almost ten years to accumulate. We had to dig deep into the scientific journals and peer-reviewed papers to see and understand how Krauss and others arrived at a geocentric universe.

But once one reaches this rather hidden level of scientific expertise, there is a plethora of literature about the demise of the Copernican Principle and the possible resurrection of geocentrism, but you are not going to hear about it on the CBS Evening News and certainly not from Danny Faulkner.

Although some of the mainstream physicists in *The Principle* made no movement toward a geocentric universe, they all remarked on the weakness of their own view, the Copernican Principle.

One of the main reasons for this shift in thinking is that we have new information about the universe that mankind has never seen before, much of it coming from about a half dozen space probes sent up in the late 1970s through the 2000s that show the geocentric universe that even Dr. Krauss was amazed to see.

Obviously, then, geocentrism deserves a place at the discussion table. Anyone who can't see that is not dealing with reality. They are denying its plausibility because of personal prejudice. Danny Faulkner is no exception.

In fact the greatest scientists to admit to a geocentric universe was Albert Einstein, a fact of history that is kept under wraps in the halls of academia. At first Einstein tried to avoid a geocentric possibility by inventing his famous theory of Special relativity, but ten years later in his General theory, he had no other choice but to accept geocentrism as a viable answer to the scientific evidence. And there were many other scientists during his time that said the same thing.

Even Isaac Newton, deemed as the master scientist who produced an irrefutable dynamic heliocentric model, still gave room in his day for a geocentric universe if certain conditions were met—a piece of evidence that has only come to the surface when certain pages of his *Principia Mathematica* were recently found after having been “lost.” As Newton put it:

“In order for the Earth to be at rest in the center of the system of the Sun, Planets, and Comets, there is required both universal gravity and another force in addition that acts on all bodies equally according to the quantity of matter in each of them and is equal and opposite to the accelerative gravity with which the Earth tends to the Sun....Since this force is equal and opposite to its gravity toward the Sun, the Earth can truly remain in equilibrium between these two forces and be at rest. And thus celestial bodies can move around the Earth at rest, as in the Tychonic system.”³

The most interesting thing we discovered in the course of making the movie is that many of the mainstream heliocentric and Big Bang participants were willing to admit there now existed a significant amount of scientific evidence that either did not support the Copernican Principle or didn’t bode well for it, and thus the movie accomplished its goal.

As for Kate Mulgrew, we chose her as the narrator due to her baritone voice and because she played Captain Janeway on *Star Trek Voyager* in the mid-1990s. She was selected over a number of other entertainment stars such as Della Reese, David Bowie, Sigourney Weaver and Gordon Sumner (otherwise known as Sting).

After our company, Stellar Motion Pictures, LLC, contacted Mulgrew’s agent in New York and made a contract with them for \$25,000 dollars, Ms. Mulgrew read the script and approved it and then signed the contract in May 2013, which scheduled her narration of the script for June 6, 2013, which she fulfilled.

Since she approved the script, there was obviously nothing in the script about which she objected when she read it in private, otherwise she would have told us before signing the contract. Then a few weeks later, we sent our crew to New York to do the actual interview. In all, Ms. Mulgrew took only two takes to make the narration perfect.

After she was done the narration, she was so impressed with its contents that she asked to have a separate interview with the director so that she could express her enthusiasm for the movie. This was a complete surprise to us because the contract did not allow her to do an interview. In other words, Kate Mulgrew went beyond her own contract because she wanted to tell everyone in the world, on film, how good the movie was, and we still retain the interview today on *The Principle* website.

³ Latin: Ut Terra quiescat in centro Systematis Solis Planetarum & Cometarum, requiritur et gravitas universalis, et alia insuper vis quae agit in omnia corpora aequaliter pro quantitate materiae in ipsis et aequalis est gravitati acceleratrici qua Terra tendit in Solem, eique contraria est, tendendo secundum lineas parallelas in plagam eandem cum linea quae ducitur a centro Solis ad centrum Terrae...Nam talis vis in corpora omnia aequaliter & secundum lineas parallelas agendo situm eorum inter se non mutat sed sinit corpora eodem modo per vim gravitatis universalis inter se moveri, ac si non ageret in eadem. Terra vero, cum haec vis gravitati ejus in Solem aequalis sit & contraria, in aequilibrio inter has duas vires manere potest et quiescere. Et sic corpora caelestia circa Terram quiescentem moveri possunt ut in Systemate Tychonico.

So, Ms. Mulgrew did a ten-minute interview to express herself. At one point she told us that to do a good job in the narration she had to study thoroughly the material to make sure she knew what it was saying. She said she needed this conviction because it led her to put deep emotion into her reading of the script.

In April 2014, we released the trailer for *The Principle*. Two weeks later a liberal Catholic named Mark Shea told Laurence Krauss that he was “cast in a film about geocentrism,” but Krauss claimed he was never interviewed for such a film. The media got hold of Krauss’ denial and it then took on a life of its own. Within a week or two, over 150 news outlets across the world were slamming *The Principle* as a farce made by two amateurs who were heavy into traditional Catholicism, including support for the church’s condemnation of Galileo in 1633. In the fourth week of April 2014, bashing of *The Principle* was the third highest trending story on the Internet.



This media attack on me, my producer, Rick Delano, and the director Ktee Thomas, came six months before the movie debuted in US theaters in October 2014. In other words, none of the world’s critics had seen the movie, and thus *The Principle* became the most critically reviewed movie in Hollywood history by critics who had never seen the movie. Apparently, we had created a new category on the list of how to evaluate feature films.

D. Faulkner: It’s not clear if Sungenis will have much of a following among Roman Catholics. After all, Sungenis had converted to Protestantism before converting back, and he argues that the Roman Catholic Church has erred in recently acknowledging that Galileo was right. That doesn’t appear to be a strategy that would resonate with many Roman Catholics. Nor does it appear Sungenis’ return to the Roman Catholic Church and his subsequent attacks on the Reformation would be endearing to many in the geocentric movement, because the movement seems to have been dominated by Protestants that tend to be wary of Roman Catholicism.

R. Sungenis: This paragraph reveals how Danny thinks. It’s all political. It’s all about who is “liking” who, as if we were back in high school. I don’t approach the subject like he does, at all. If I believe something is the truth and the world needs to hear it, I’m going to preach it, and I don’t care who likes me or hates me.

If I didn't do so, I wouldn't last three seconds, since I'm not in this game for a popularity contest or to make a lot of money. In fact, I faced bankruptcy because of the movie, since I put every cent I had into it. It also tells me that if Danny even has a slight conviction that geocentrism might be viable due to his problem with "how tricky motion is," he's not going to reveal it because it's not politically advantageous for him.

D. Faulkner: Supposed Scientific Arguments for Geocentrism

How do proponents of geocentric theory explain the evidence for the earth's orbital motion, aberration of starlight, parallax, annual periodic Doppler motion in stars, and light travel time corrections? Recall that geocentrists believe the Tychonic model, which amounts to a coordinate transformation from the sun being the center of motion to the earth being the center of motion. Modern geocentrists alter the Tychonic model to apply this coordinate transformation to the rest of the universe as well. Therefore, not only does the sun orbit the earth each year, but the entire universe does as well. Consequently, the coordinate transformation produces all these effects. Since most geocentrists don't believe that the earth rotates, then they must believe that the universe spins around the earth each day. This would require speeds much in excess of the speed of light for objects beyond the orbits of the planets, so this would seem to violate a fundamental tenet of modern physics. But DOTGU physicists would say, "Not so fast!" They would point out that it is possible to construct a model of a spinning universe that does not violate this. Still, if the earth does not spin, how does one explain the Foucault pendulum? I shall defer the answer to that question until I discuss Mach's principle.

R. Sungenis: Not only is it possible, it is precisely what the General Principle of Relativity allows, some of which overlaps with Einstein's General Theory of Relativity. Let's hear it from the master himself:

"Since the time of Copernicus we have known that the Earth rotates on its axis and moves around the sun. Even this simple idea, so clear to everyone, was not left untouched by the advance of science" (*The Evolution of Physics*, pp. 154-155, 1938).

"The struggle, so violent in the early days of science, between the views of Ptolemy and Copernicus would then be quite meaningless. Either coordinate system could be used with equal justification. The two sentences: "the sun is at rest and the Earth moves," or "the sun moves and the Earth is at rest," would simply mean two different conventions concerning two different coordinate systems"" (*The Evolution of Physics*, p. 212).

Stephen Hawking said much the same:

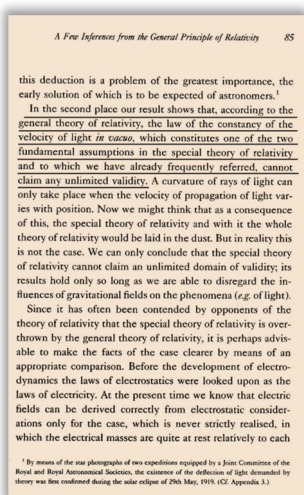
"So which is real, the Ptolemaic or the Copernican system? Although it is not uncommon for people to say that Copernicus proved Ptolemy wrong, that is not true. As in the case of our normal view versus that of the goldfish, one can use either picture as a model of the universe, for our observations of the heavens can be explained by assuming either the earth or the sun to be at rest." (*The Grand Design*, Stephen Hawking and Leonard Mlodinow, 2010, p. 41).

Kitty Ferguson, a popular American science writer, notes the same fact—modern science's inability to prove the earth revolves around the sun. She writes:

“Yet our own contemporary science backs away and tells us that when it comes to proving what moves and what doesn’t, and whether or not there is an unmoving ‘center,’ no one can make an airtight case that any answer is right or wrong....It is possible to describe the entire universe using any chosen point as the unmoving center—the Earth will do very well—and no one can prove that choice is wrong....no one can prove that the Earth moves” (*Measuring the Universe*, 1999, p. 35).

There are dozens more admissions like these. I’ve been collecting them for 18 years. They all admit what Danny seems reluctant to concede. Who is being honest with us?

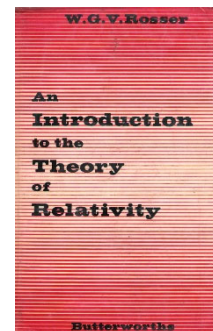
As for superluminal speed, it is a fact of the General Principle of Relativity and thus is part of Einstein’s General Relativity. Let’s listen to Einstein and his colleague, G. V. Rosser, in his book, *The General Theory of Relativity*:



“In the second place our result shows that, according to the general theory of relativity, the law of the constancy of the velocity of light *in vacuo*, which constitutes one of the two fundamental assumptions in the special theory of relativity and to which we have already frequently referred, cannot claim any unlimited validity” (Albert Einstein, *Relativity: The Special and General Theory*, 1920, p. 76).

As now William G. V. Rosser:

“If gravitational fields are present the velocities of either material bodies or of light can assume any numerical value depending on the strength of the gravitational field. If one considers the rotating roundabout [earth] as being at rest, the centrifugal gravitational field assumes enormous values at large distances, and it is consistent with the theory of General Relativity for the velocities of distant bodies to exceed 3×10^8 m/sec [c] under these conditions” (*An Introduction to the Theory of Relativity*, William G. V. Rosser, 1964, p. 460).



D. Faulkner: How does the geocentric universe work, with everything orbiting around the earth? Geocentrists generally accept Newtonian physics, including Newton’s theory of gravity.

R. Sungenis: Yes, but we accept Newtonian physics up to a point, just as Danny’s heliocentrism does. The problem with Newtonian physics is that it assumes the universe is absolute (otherwise his physics wouldn’t work). In other words, unless Newton has a solid and immovable background from which to measure the forces, masses, and accelerations he inserts into his system, then his system will not function as he proposed. As a result, Newton accounts for the inertial forces (centrifugal, Coriolis and Euler) that don’t appear in his equations ($F = ma$) by claiming they are “fictitious” forces or artifacts due to motion against the absolute universe. In other words, Newton’s physics can only take one so far. More on this below.

D. Faulkner: They also accept the fact that the sun has far more mass than the earth has. It's the sun's gravity that produces the relative motion between the earth and sun. This would seem to require that the earth orbit the sun rather than the other way around. The solution to this problem lies in the coordinate transformation from the heliocentric model to the Tychonic model.

R. Sungenis: No, it is not merely a "coordinate transformation," since that is merely a geometrical inverse. Rather, it is a dynamic transformation (a force transformation) – which is something with which I don't think Danny is familiar.

D. Faulkner: To the geocentrist, this is more than just convention. Though not explicitly stated, a hidden assumption (perhaps even hidden from geocentrists) is that space is attached to the earth, and as the earth moves under the influence of the sun's gravity, it drags space along with it. This amounts to geocentrism by definition. Since the earth is at rest with respect to itself, even if the earth is moving, it isn't moving if the frame of reference is the earth. If this sounds like doubletalk, it is. This is a clever sleight of hand trick. Geocentrists begin with slick talk of the earth not moving, but the argument subtly shifts to how the earth moves yet doesn't move. This is not the sort of thinking that most geocentrists subscribe to when they first begin to believe geocentrism might be right.

R. Sungenis: This description tells me that Danny doesn't have a clue how geocentrism works or has been taught. Not only is the above description completely wrong, I don't know anyone who has come close to using it. It's hard to believe that a PhD in Astronomy can misrepresent his opponent's system so badly. But this is what we have to put up with time and time again from all our critics. They never really study the geocentric system; rather, they make up their own straw man to battle.

Geocentrism does not say or believe that "space is attached to the earth, and as the earth moves under the influence of the sun's gravity, it drags space along with it." The only ones I know who ever suggested that "space was attached to the earth" was Albert Michelson who represented a few scientists who were trying to explain why the 1887 Michelson-Morley experiment did not measure any movement of the earth in the aether. Michelson thought the solution was that the aether was entrained with the earth, that is, moved with the earth as the earth revolved around the sun. But he was a heliocentrist, as were all of his colleagues. So where Danny is getting his view I haven't the slightest clue. Van der Kamp didn't teach it; Bouw didn't teach it; and I certainly don't teach it.

In geocentrism, the earth is perfectly fixed. It does not revolve around the sun or rotate on an axis. Instead, the universe revolves around the earth and carries the sun with it (although the sun has a slight drag which allows it to revolve a little slower than the universe to make our year). In fact, the aether (which Michelson had accepted) revolves with the universe and thus the aether moves against the earth every hour of every day. Since space is aether, then we can say that space rotates around the earth each day. Michelson discovered this very fact when he did his 1925 Michelson-Gale experiment, which measured the sidereal rotation rate with rectangular oriented aether-based interferometer.

More importantly, in the geocentric system, the rotating universe has angular momentum. That angular momentum translates into the three inertial forces: centrifugal, Coriolis and Euler. These inertial forces work together to hold and revolve everything daily around the central and fixed earth, which is the universe's center of mass. Thus the reason the larger sun can revolve around the small earth is because

the inertial forces of a rotating universe force the sun to do so. I've repeatedly stated this in great detail in my books, but unfortunately, Danny has never my books.

D. Faulkner: Modern geocentrists alter the Tyconic model to apply this coordinate transformation to the rest of the universe as well.

R. Sungeis: This is a slipshod way of putting it, and I can guarantee nobody knows what Danny is referring to. It needs explanation. The original Tyconic model made the earth the geometric center of the universe, not the dynamic center. This caused problems because it didn't answer things like stellar parallax or stellar aberration. The Neo-Tyconic model makes the earth the dynamic center, while the sun, which is aligned with the stars, as the geometric center. As such, the universe revolves around the earth on a 1 AU cam and stellar parallax and stellar aberration are observed.

D. Faulkner: The Nature of Light and "Aether": In many ancient cultures, and until four centuries ago, most people assumed that it was the sun that moved. However, most people today think that it is the earth's rotation on its axis that accounts for what we see each day. Much of the supposed scientific case for geocentrism has its roots in physicists' understanding of light. There was much debate on the nature of light in the 17th century. One idea was that light was a wave, while the other idea was that light was a particle. This latter theory was championed by Newton, who called particles of light corpuscles. Largely because of Newton's stature in physics, the particle theory of light came to dominance in the 18th century. However, in the early 19th century several experiments produced results that confirmed the wave nature of light and disproved Newton's corpuscle theory of light. But since all other waves required a medium to pass through, this raised the question of what the medium for light was. More particularly, physicists had come to realize that there wasn't much, if any, matter between the sun and the earth, so how did light propagate through the emptiness of space? Physicists postulated that space must be filled with some medium, a substance they called aether, a term borrowed from ancient Greek science for the ethereal stuff that filled space above the earth. The physical properties of aether were remarkable. Aether had no mass, yet it was very stiff and resilient. At the same time, aether had to be fluid to allow astronomical bodies to move. Aether had to instantly close back behind objects, such as the moon, as they moved through space. So aether was a stiff and rigid perfect fluid. In short, aether must have had properties totally unknown in any other substance.

As strange as aether seemed, physicists of the 19th century came to accept its existence. Aether also provided a frame of reference for space—things were either at rest with respect to aether or in motion with respect to aether. In all other wave phenomena, the measured velocity of a wave depended on the velocity of the wave with respect to the medium, but also the velocity of the observer with respect to the medium. Consider sound waves. At 68°F and one atmosphere of pressure, the speed of sound is 767 mph. Suppose that a person moves toward a source of sound at a velocity of 20 mph. The measured speed of sound will be $767 \text{ mph} + 20 \text{ mph} = 787 \text{ mph}$. But if the person moves the opposite direction, the speed of sound will be $767 \text{ mph} - 20 \text{ mph} = 747 \text{ mph}$. All this sounds simple enough, but many experiments in the 19th century only served to muddy the water. To explain some of these experimental results, physicists developed different versions of aether theory. The original version had a motionless aether, but in some versions aether was dragged along by moving objects, while in other

versions the aether was only partially dragged. Each version of the many aether theories could explain some experimental results, but they utterly failed to explain other experimental results.

R. Sungenis: While we are here, allow me to fill in some of the historical information that is pertinent to the subject of geocentrism. For example, the “partial drag” theory of aether was invented by Augustin Fresnel (pronounced Fray-nel) to combat the non-moving earth results of the experiments done by Dominique Arago. As the famous 20th-century scientific historian, Edmund Whittaker, concluded about Arago’s experiment:

Arago submitted the matter to the test of experiment, and concluded that the light coming from any star behaves in all cases of reflexion and refraction precisely as it would if the star were situated in the place which it appears to occupy in consequence of aberration, and the earth were at rest; so that the apparent refraction in a moving prism is equal to the absolute refraction in a fixed prism.⁴

To make a long story short, Fresnel claimed that Arago detected a non-moving earth because the lens of Arago’s telescope dragged the ether within it just enough to make it appear as if the earth wasn’t moving. How convenient. Another example is Michelson’s 1887 experiment. It only detected about one tenth of the aether impedance it needed for an earth revolving around the sun at 30km/sec, so instead of admitting the earth might not be moving in the aether, Michelson claimed the aether was entrained to the earth and moved with it, all to avoid a non-moving earth. How convenient.

D. Faulkner: The most famous of these experiments was the one conducted by Albert Michelson (1852–1931) and Edward Morley (1838–1923) in 1887. They attempted to measure the speed of light as the earth moved in orbit around the sun. They used an interferometer, a device that uses the principle of interference of waves, to measure the speed of light, first in the direction of the earth’s orbital motion, and then perpendicular to the earth’s orbital motion. Aether theories then under consideration, predicted that the speed of light would be different in the two directions, but Michelson and Morley found that the speed of light was the same in either direction. Though the null result contradicted the prediction of aether theory, it did not necessarily disprove aether’s existence. Rather, it could be aether did not exist in the form anyone had yet proposed.

R. Sungenis: What Danny eliminates as a possibility is that the aether exists, but if the earth isn’t moving around the sun then its not moving through aether, and thus Michelson’s results accord with geocentrism, not heliocentrism. Other scientists weren’t so obtuse, as Danny. Many admitted that the 1887 Michelson experiment appeared to show the earth wasn’t revolving around the sun. Here are some:

“There was just one alternative; the earth’s true velocity through space might happen to have been nil.” Physicist, Arthur Eddington⁵

“A great deal of research has been carried out concerning the influence of the Earth’s movement. The results were always negative.” Physicist, Henri Poincaré⁶

⁴ *A History of the Theories of Aether and Electricity*, 1910, p. 116

⁵ Arthur Eddington, *The Nature of the Physical World*, 1929, pp. 11, 8.

⁶ From Poincaré’s report *La science et l’hypothèse* (“Science and Hypothesis”)1901, 1968, p. 182. L. Kostro’s, *Einstein and the Ether*, 2000, p. 30.

“This conclusion directly contradicts the explanation...which presupposes that the Earth moves.”
Physicist, Albert Michelson⁷

“The data [of Michelson-Morley] were almost unbelievable... There was only one other possible conclusion to draw — that the Earth was at rest.” Physicist, Bernard Jaffe⁸

“Thus, failure [of Michelson-Morley] to observe different speeds of light at different times of the year suggested that the Earth must be ‘at rest’...It was therefore the ‘preferred’ frame for measuring absolute motion in space. Yet we have known since Galileo that the Earth is not the center of the universe. Why should it be at rest in space?” Physicist, Adolph Baker⁹

“...The easiest explanation was that the earth was fixed in the ether and that everything else in the universe moved with respect to the earth and the ether....Such an idea was not considered seriously, since it would mean in effect that our earth occupied the omnipotent position in the universe, with all the other heavenly bodies paying homage by moving around it.” Physicist, James Coleman¹⁰

“In the effort to explain the Michelson-Morley experiment...the thought was advanced that the Earth might be stationary....Such an idea was not considered seriously, since it would mean in effect that our Earth occupied the omnipotent position in the universe, with all the other heavenly bodies paying homage by revolving around it.” Physicist, Arthur S. Otis¹¹

“It is well-known that this experiment consistently failed to measure a phase-difference. It might thus mean that the earth is stationary relative to the ether.” Physicist, Johan F. Prins¹²

“The Michelson-Morley experiment confronted scientists with an embarrassing alternative. On the one hand they could scrap the ether theory which had explained so many things about electricity, magnetism, and light. Or if they insisted on retaining the ether they had to abandon the still more venerable Copernican theory that the earth is in motion. To many physicists it seemed almost easier to believe that the earth stood still than that waves – light waves, electromagnetic waves – could exist without a medium to sustain them. It was a serious dilemma and one that split scientific thought for a quarter century. Many new hypotheses were advanced and rejected. The experiment was tried again by Morley and by others, with the same conclusion; the apparent velocity of the earth through the ether was zero.” Historian, Lincoln Barnett, foreword by Albert Einstein¹³

“What happened when the experiment was done in 1887? There was never, never, in any orientation at any time of year, any shift in the interference pattern; none; no shift; no fringe

⁷ Albert A. Michelson, “The Relative Motion of the Earth and the Luminiferous Ether,” *American Journal of Science*, Vol. 22, August 1881, p. 125.

⁸ Bernard Jaffe, *Michelson and the Speed of Light*, 1960, p. 76.

⁹ Adolf Baker, *Modern Physics & Antiphysics*, pp. 53-54.

¹⁰ James A. Coleman, *Relativity for the Layman*, p. 37.

¹¹ Arthur S. Otis, *Light Velocity and Relativity*, p. 58.

¹² Johan, F. Prins, “On Einstein’s Non-Simultaneity, Length-Contraction and Time Dilation,” Cathodixx, South Africa, nd.

¹³ Lincoln Barnett, *The Universe and Dr. Einstein*, p. 44.

shift; nothing. What's the implication? Here was an experiment that was done to measure the speed of the earth's motion through the ether. This was an experiment that was ten times more sensitive than it needed to be. It could have detected speeds as low as two miles a second instead of the known 20mps that the earth has in its orbital motion around the sun. It didn't detect it. What's the conclusion from the Michelson-Morley experiment? The implication is that the earth is not moving..." Physicist, Richard Wolfson¹⁴

"Michelson and Morley found shifts in the interference fringes, but they were very much smaller than the size of the effect expected from the known orbital motion of the Earth." Physicist, John D. Norton¹⁵

"This 'null' result was one of the great puzzles of physics at the end of the nineteenth century. One possibility was that...v would be zero and no fringe shift would be expected. But this implies that the earth is somehow a preferred object; only with respect to the earth would the speed of light be c as predicted by Maxwell's equations. This is tantamount to assuming that the earth is the central body of the universe." Physicist, Douglas C. Giancoli¹⁶

"If [earth] it isn't moving relative to the ether, then earth alone among the cosmos is at rest relative to the ether. Now that may be an absurd possibility but maybe it's true. I think you can see that this is not going to be very philosophically satisfying, and it isn't satisfying physically either, but it violates the Copernican Principle that the earth isn't special. It is particularly absurd in light of what we know from modern cosmology namely that there are places in the universe, distant galaxies in particular, that are moving away from us at speeds very close to the speed of light. It's absurd to imagine that everything in the universe is pinned to earth when there are such a wide range of speeds relative to earth throughout the universe, but it suffices to rule it out on this philosophical ground." Physicist, Richard Wolfson¹⁷

"So if Earth is at rest relative to the ether, then it alone is at rest. That makes us pretty special....Do you really want to return to parochial, pre-Copernican ideas? Do you really think you and your planet are so special that, in all the rich vastness of the Universe, you alone can claim to be 'at rest?'" Richard Wolfson¹⁸

D. Faulkner: For the next two decades, the best minds in physics pondered this problem. Two men stand out in this endeavor: Hendrik Lorentz (1853–1928) and George FitzGerald (1851–1901). In 1889, FitzGerald proposed a model that maintained the classical aether theory in which the length of moving objects contracted as a function of speed.

R. Sungenis: It would be good to know why FitzGerald proposed it. It is for the same reason we saw above, that is, to inhibit geocentrism as being a solution for the 1887 Michelson experiment, since they were all embarrassed that science couldn't prove the earth moved. So, whereas Fresnel had proposed that the

¹⁴ *The Teaching Company*, episode taught by Professor Richard Wolfson of Middlebury College.

¹⁵ "The Origins of Special Relativity," www.pitt.edu/~jdnorton/teaching/HPS_0410/chapters/origins/index.html, p. 14.

¹⁶ Douglas C. Giancoli, *Physics: Principles with Applications*, 1985, pp. 613-614 and 1980, p. 625.

¹⁷ "Einstein's Relativity and the Quantum Revolution," Richard Wolfson, *The Teaching Company*, 2000, Lecture 5: "Speed c Relative to What?"

¹⁸ Richard Wolfson, *Simply Einstein: Relativity Demystified*, New York, W. W. Norton Co. 2003, pp. 63-64.

lens of the telescope dragged the aether just enough to make Arago see a non-moving earth (but Arago still believed the earth really was moving at 30km/sec), Fitzgerald claimed the aether put pressure on Michelson's westward interferometer arm to shorten it just enough to make it appear the earth wasn't moving (but Fitzgerald did not give up his view that the earth was moving at 30km/sec). Why wasn't Danny forthcoming with this information?

D. Faulkner: In 1892, Lorentz showed that reconciling aether with the null result of the Michelson-Morley experiment also required time be dilated as a function of speed. The amount of length contraction and time dilation required by the Lorentz-FitzGerald contraction hypothesis was imperceptible except at speeds approaching the speed of light. While this resolution to the null result of the Michelson-Morley experiment was welcomed, it seemed to have been pulled out of thin air. Why would the motion of objects cause their lengths to contract and time to dilate?

R. Sungenis: Indeed. Still, this ad hoc answer had its complications. For if one shortens the length of the interferometer arm, then the light going through the arm is going to have less length to travel and thus it is going to get to its destination faster than when the arm is not shortened. So, to make up for this discrepancy, Lorentz added that the time of travel had to be increased or "dilated." Hence whatever was needed to eliminate the possibility of a fixed earth, modern science was ready to do it.

D. Faulkner: In 1905, Albert Einstein (1879–1955) gave the proper basis for these effects by deriving them from first principles. He assumed that physical laws and the speed of light are invariant in any inertial reference frame (an idea originally proposed by Henri Poincaré [1854–1912]).

R. Sungenis: "first principles"? Hardly. Einstein knew the Michelson experiment suggested the earth wasn't moving (as we saw in his quotes from above), and it was his self-appointed job to fix that problem for modern science. But he knew the Fitzgerald/Lorentz hypothesis that aether was the cause for the length shrinkage and time dilation wouldn't sit well with modern science since aether had always been understood as frictionless and not able to put pressure on matter. So Einstein proposed that we merely remove the aether from the issue and find another reason why the length contracted and the time dilated. To do so, Einstein needed to "assume" that the speed of light was constant, otherwise he would have no way to measure whether there was length contraction or time dilation. In other words, in his theory of "relativity" Einstein needed an absolute, and that absolute was the speed of light. Basically, Einstein had two choices: (A) make the speed of light constant; or (B) make the earth's speed constant at zero. Of course, he chose (A) to save the world from being totally embarrassed.

Of course, there were complications.

First, Einstein's theory, as John Norton noted above, didn't explain why Michelson detected a small amount of aether drift every time Michelson and others did the experiment, which was performed by a dozen scientists over 50 years. The importance of the small amount of aether was explained by Charles Lane Poor, professor of physics at Columbia University, who said the following in his 1922 book, *Gravitation versus Relativity*:

The Michelson-Morley experiment forms the basis of the relativity theory: Einstein calls it decisive...if it should develop that there is a measurable ether-drift, then the entire fabric of the relativity theory would collapse like a house of cards.¹⁹

In fact, when the experimenters kept finding aether, Einstein hired a man, Robert Shankland, to fudge the figures so that all the results would be suspect of error. Why? Because as Einstein said himself: "If [his interpretation] of Michelson-Morley is wrong, then relativity is wrong," and his whole career would be over in a second.

Second, how can Einstein just wave his hand and eliminate the aether without at least some experimental evidence it didn't exist other than his question-begging interpretation of Michelson's experiment? Already in 1865, Maxwell had shown that electricity and magnetism moved through aether, which led to the amazing fact that he needed two (in all, four) different equations to explain the results. One equation explained how an electric induction coil went around a stationary magnet; the second equation explained how a magnet went around an electric induction coil. The need for at least two different equations showed that space was absolute, not relative.

Moreover, although Maxwell used a speed of light in his equations that was stable at c , he said that if the aether moved in the direction of the light beam, then the speed of light would be faster than c for the observer. Einstein's way of dealing with this hitch was to claim that Maxwell didn't need to use two equations if he would have just put Fitzgerald and Lorentz's "contraction equation" ($L_{length}' = L_{length} \sqrt{1 - v^2/c^2}$) on one of Maxwell's equations! Talk about putting the cart before the horse! Einstein was engaging in the fallacy of *petitio principii*, otherwise known as using as proof the very thing one is trying to prove.

Third, ten years later, Einstein took back in General Relativity the very aether he had discarded in Special Relativity. Let's allow Einstein to say it himself:

"Recapitulating, we may say that according to the general theory of relativity, space is endowed with physical qualities; in this sense, therefore, there exists an ether. According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time. The idea of motion may not be applied to it."²⁰

¹⁹ *Gravitation versus Relativity*, p. 261.

²⁰ Äther und Relativitätstheorie. Rede gehalten am 5. Mai 1920 an der Reichs-Universität zu Leiden. Berlin: Springer, 1920 [Vol. 7, Doc. 38, 305–323; trans. 160–182]; http://en.wikisource.org/wiki/Ether_and_the_Theory_of_Relativity

D. Faulkner: An inertial frame of reference is a frame of reference that is not accelerating (i.e., it is either at rest or in uniform motion).

R. Sungenis: It would also be helpful to understand that an inertial frame is not affected by gravity or inertial forces (centrifugal, Coriolis, and Euler). The question is, however, is there such a place in the universe?

D. Faulkner: Even though the earth's orbital motion technically is accelerating, the amount of acceleration compared to the size of the motion is very small, so the motion that the Michelson-Morley experiment was trying to detect represents an inertial frame. This understanding is consistent with the null result of the Michelson-Morley experiment.

R. Sungenis: Of course. If one eliminates effects of aether, gravity, and inertial forces, then certainly one can say light speed is constant in such an environment. I would, too. But this just begs the question: What made the light speed of the two beams the same in the Michelson experiment? Was it, as Danny claims, because there was no aether for the moving Earth to travel through around the sun; or was it because the Earth wasn't moving through the aether and therefore the light speed would be constant in both interferometer arms? Danny hasn't disprove the latter answer, but he clings to the former answer like glue. Is that a fair scientist? Besides, the great thing about the geocentric answer is that we don't have to make up fudge factors such as length contraction, time dilation, and a third one Danny will introduce below, mass increase.

D. Faulkner: Working out the consequences, not only did Einstein show that the Lorentz-FitzGerald contraction was a natural consequence of his postulate,

R. Sungenis: That's like saying that the death of a horse is the natural result of beating him too much. Who cares how Einstein lines up his causes and effects? The \$64,000 question is whether he was right in presuming a constant speed of light and getting rid of the aether, since in doing so he is stuck with strange physical behavior, such as the shortening of length, the dilation of time, and the increase in mass. All that, just to keep the earth from not moving.

D. Faulkner: ...but it also predicted that mass would increase at high speeds.

R. Sungenis: This is another one of those instances of begging the question. In Einstein's theory, there must be a mass increase of a moving object because if one shortens the length of an object as it travels, that means the object is going to have more mass per unit volume than it did when it was at rest and unshortened. But modern physicists turn this ugly feature into a golden egg. In particle physics they claim that an increase in the mass of a proton or some other subatomic particle has been detected in things like the Hadron collider. The question begging begins by assuming that the mass increase is due to Einstein's Special Relativity theory. In reality, it may just be due to the aether through which the proton is greatly accelerated that is adhering to the proton at very high speeds.

D. Faulkner: All three of these effects have been confirmed experimentally.

R. Sungenis: No they have not. No one I've researched even agrees whether the Lorentz contraction is a real thing or is just abstract. There are eight different theories as to what the Lorentz contraction actually is (and I cover all of them in my book, *Galileo Was Wrong*). But if any of them dare say the contraction does not exist in some way, they will lose their job for going against Einstein, just as Danny would be fired

from Answers in Genesis if he started supporting geocentrism. As for time dilation, who has proven it? Danny gives no evidence. In my research I have found that whenever there is a discrepancy in clock measurement, the Relativists are quick to claim it is because of the principle of time dilation. Is it? In all of the cases, it can be shown that the clocks have discrepancies because gravity or some other force affects the moving parts of a clock, even a cesium clock.

D. Faulkner: Unlike the Lorentz-FitzGerald hypothesis that was plucked from the air, the special theory of relativity, as Einstein's solution came to be called, is based upon a single postulate, the postulate of invariance of physical law.

R. Sungenis: Oh, that makes it sound as if Einstein is such the perfect scientist and that Lorentz and Fitzgerald were not so scientific. Let's be honest. Einstein plucked his theory out of the air just like the other two. Einstein's was even more egregious because he took the aether away with a simple wave of his hand since it got in the way of his wish for relativity. And then, to assume light speed is constant without any scientific proof is, shall we say, just like pulling that postulate out of thin air. But, as we saw earlier, this answer from Einstein was convenient in 1905 when he had to come up with some answer to why the 1887 Michelson experiment seemed to make the earth fixed in space. But when that had all passed with time and he had to reinvent his relativity theory into General Relativity, he suddenly changed his mind and said that aether existed and light speed was not constant. Well, if aether exists and light speed is not constant, then doesn't that totally destroy Einstein's Special Relativity answer to Michelson's 1887 experiment? Yes it does. But no one, including Danny Faulkner, is about to connect those two dots for you.

D. Faulkner: But there is more to this invariance of physical law, something that is omitted in many discussions of Einstein's theory of special relativity. Since Galileo, physicists had used Galilean relativity to compare motions of objects. Newton's laws of motion exactly described how objects moved. Those laws gave the same results whether the person observing what was happening was moving at a constant rate or was at rest. We say that the laws of Newtonian mechanics are invariant with regard to uniform motion. In the 1860s, James Clerk Maxwell published four equations that beautifully unified electricity and magnetism. Among other things, these equations describe how a moving magnet near a coil of metal wire will induce an electrical current in the wire. But what if the magnetic field were stationary and the coil of wire moved? We observe that the result is the same, though there is no reason it ought to be. The heart of what Einstein was attempting with special relativity was the invariance of Maxwell's equation with regard to uniform motion. It is this approach that leads to the counterintuitive result that the speed of light is invariant. If the speed of light varies depending upon the speed of the source or observer, electricity and magnetism are not invariant. The people who reject special relativity have no idea what price they pay in doing so.

R. Sungenis: Again, we catch Danny in a contradiction. He is so used to interpreting the evidence in his favor that he invariably forgets there is another answer. Danny says:

"But what if the magnetic field were stationary and the coil of wire moved? We observe that the result is the same, though there is no reason it ought to be."

If "the result is the same," then why did Maxwell "publish four equations" that were all different from one another? Obviously, the results were NOT the same, since the equations were all giving different results.

Maxwell concluded from these different equations that the space between the induction coil and the magnet that the forces traveled was not relative but was absolute, and this is precisely what Einstein didn't like about Maxwell's results. The solution was to relativize Maxwell's equations by using the Lorentz transform ($\sqrt{1 - v^2/c^2}$). In fact, the Lorentz transform is the most used equation in modern physics today, even more than $F=ma$, and that's because in Einstein's 1905 paper he used the Lorentz transform to transform the whole world (electricity, magnetism, gravity, inertia, light and material objects) into an Einsteinian world of complete relativism.

D. Faulkner: At first, it appeared that Einstein's special theory of relativity had eliminated the need for an aether, and Einstein opined as much. However, this assessment was premature, and Einstein later walked his statement back. What Einstein's theory of relativity did was eliminate the classical physics aether of the 19th century by replacing it with a very different kind of aether. Einstein's theory of special relativity was controversial. While widely accepted today, it took years for many physicists to accept special relativity.

R. Sungenis: Well, at least Danny has finally been forthcoming about Einstein taking the aether back. But that fact alone blows a wide hole in Danny's position. Even in admitting this embarrassing fact, Danny tries to save some face for Einstein by saying that, "Einstein's theory of relativity did was eliminate the classical physics aether of the 19th century by replacing it with a very different kind of aether." As we say earlier, Einstein said:

According to the general theory of relativity space without ether is unthinkable; for in such space there not only would be no propagation of light, but also no possibility of existence for standards of space and time (measuring-rods and clocks), nor therefore any space-time intervals in the physical sense. But this ether may not be thought of as endowed with the quality characteristic of ponderable media, as consisting of parts which may be tracked through time. The idea of motion may not be applied to it.²¹

Let's examine this. If the aether is going to give "propagation of light" and "standards of space and time" to measure things, as well as give us "space-time intervals," then what, pray tell, is this substance if it is not close to what Lorentz was imagining for his "classical" aether? And, with another wave of his hand (as he did in 1905 by eliminating the aether), Einstein now waves the other hand and says this aether cannot be "ponderable" or have "parts" nor "track time," nor have "motion." Wow! Such a tall order of tasks to accomplish for an aether that is so limited in its scope. How does he prove any of this? He doesn't. It's just what he needs to accommodate his General Relativity theory (and, of course, he doesn't say one word about this new aether contradicting his claim in 1905 that no such aether existed, since, as Einstein proposed in 1905, that light doesn't need a medium and can manufacture its own "electromagnetic" medium). What a mass of contradictions! How anyone can honestly follow this man is amazing. But if anyone criticizes him or denounces him, they will lose their job. I've seen it over and over again.

D. Faulkner: The Einstein Ally? The Michelson-Morley experiment is key to the geocentric argument. They tend to like the classical aether of 19th-century physics, and so they take the experiment at face value, concluding that the earth does not move.

²¹ Äther und Relativitätstheorie. Rede gehalten am 5. Mai 1920 an der Reichs-Universität zu Leiden. Berlin: Springer, 1920 [Vol. 7, Doc. 38, 305–323; trans. 160–182]; http://en.wikisource.org/wiki/Ether_and_the_Theory_of_Relativity

R. Sungenis: Imagine that. We take experimental evidence at face value! What a crime! Instead of making up theories to answer evidence we don't like (e.g., the Lorentz contraction, no aether, constant speed of light, time dilation, mass increase) we just look at the experimental data and make a logical face value observation. We then see that this experimental data coincides with Scripture that says at least a dozen times that the earth doesn't move and the sun goes around it (and never says the earth moves around the sun nor rotates on an axis), and we have already taken that Scriptural language and interpreted it at face value. And then we find the Church fathers all agreed that Scripture should be interpreted at face value on this matter. And then we find that a central non-moving earth makes the most sense philosophically because it makes the earth the apple of God's eye and the favored location in all the universe. But forget all that, says Danny Faulkner! Yet when Danny needs to interpret Scripture at face value to deal with the evolutionists he was hired to fight, and needs it to support the Noah's Ark exhibition he runs in Kentucky, then he's all for "face value" interpretation of the data. Somebody ought to tell Danny that this dichotomy in his approach is nothing but an inexcusable contradiction.

D. Faulkner: Geocentrists even use Einstein as a source for this conclusion, by quoting him as saying, "I have come to believe that the motion of the Earth cannot be detected by any optical experiment." This quote might seem to make a good case for geocentrism, but let's look at the quote in context:

While I was thinking of this problem in my student years, I came to know the strange result of the Michelson's experiment. Soon I came to the conclusion that our idea about the motion of the Earth with respect to the ether is incorrect, if we admit Michelson's null result as a fact. This was the first path which led me to the special theory of relativity. Since then I have come to believe that the motion of the Earth cannot be detected by any optical experiment, though the Earth is revolving around the Sun.

R. Sungenis: Apparently, Danny is trying to make it appear as if the first quote has always been taken out of context from the second, but such is not the case. I am the one who has promoted the quotes (but they've all been told not to mention my name unless it is absolutely necessary). Sometimes, as on a back book cover, quote #1, because it is short, is used since there is little other room. But in my books, quote #2 is always written out with it. Nice try, Danny.

In fact, one reason I make so much use of the quote #2 is that it reveals that Special Relativity was a direct result of Einstein's investigation into the Michelson-Morley experiment. This is important because Einstein scholars don't want to admit that Special Relativity was caused by experiments showing the earth was fixed in space, as if Einstein was fighting against the Bible. Rather, they try to say that Special Relativity arose out of Einstein's contention with Maxwell's equations and had nothing to do with him wanting to keep the earth in motion.

D. Faulkner: First, notice that Einstein explicitly stated that the earth revolves around the sun.

R. Sungenis: And notice he did so even admitting that there was no optical experiment that showed it was revolving, and doesn't name any other experiment that proves the earth is revolving. If there was one, I'm sure Einstein would have mentioned it, here or elsewhere, but he doesn't.

D. Faulkner: Second, in context, Einstein is talking about the Michelson-Morley experiment. Hence, what Einstein meant by "any optical experiment" was an interferometric experiment

testing for motion with respect to space. Einstein was not saying earth's motion could not be detected by any means. As discussed earlier, there are other ways to detect the earth's motion.

R. Sungenis: No, what Einstein meant is, ANY optical experiment, and that refers to all of them done in the 1800s and 1900s, such as Arago (1810s), Airy (1871), Bradley (1725), Bessel (1838), Hoek (1868), Mascart (1872), which were designed to detect movement of the earth, but they all failed. And as "discussed earlier," Danny has no other way to prove the earth moves, since stellar aberration, stellar parallax, retrograde motion and the Doppler effect are not going to prove the earth is moving since each has a geocentric counter-explanation.

D. Faulkner: Improperly handling quotes and experimental results is a common characteristic of geocentric arguments.

R. Sungenis: Oh, I guess that's because we take experimental results at "face value" instead of making up all kinds of fudge factors to keep the status quo. As for "handling quotes," if there was ever a mishandling, Danny shows us above in the quote from Einstein how he misrepresents his opponent's handling the so-called "mishandling."

D. Faulkner: For instance, geocentrists rarely, if ever, discuss an experiment that Hyppolite Fizeau (1819–1896) did in 1851.

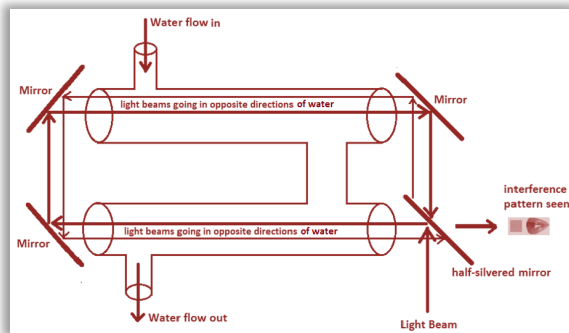
R. Sungenis: This proves to me once again that Danny hasn't read *Galileo Was Wrong* or *Geocentrism 101*, since I cover Fizeau at length in both. I also cover it in the movie, *Journey to the Center of the Universe*.

D. Faulkner: Fizeau used an interferometer to measure the speed of light in stationary and moving water. He found that the speed of light was different in these two situations; however, the difference was not consistent with either a motionless or a totally dragged aether. This was the primary evidence for the partially dragged aether theory. But this result didn't seem to be consistent with the Michelson-Morley experiment. The reason why geocentrists like to cite the Michelson-Morley experiment while ignoring Fizeau's experiment is that the latter experiment totally undermines their position.

R. Sungenis: Bull. How could Danny come to such a conclusion if he's already admitted that no geocentrist has dealt with the Fizeau experiment? He's never seen a geocentric explanation. Well, here is one, and it is the short version from *Geocentrism 101*:

Armand Fizeau Seeks to Support Fresnel's "Drag" Theory

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Another French scientist by the name of Armand Fizeau (1821–1896) attempted to prove the Fresnel drag theory by doing an experiment. Fizeau filled two tubes with water and made the water move very rapidly through the tubes. In one tube he sent a light beam going in the same direction as the moving water. In the other tube, a light beam was sent in the opposite direction of the moving water. Fizeau reasoned that the latter light beam would take more time to travel through its tube than the light beam moving in the same direction as the water. The results showed that he was correct – the light beam traveling against the water moved more slowly. Fizeau attributed the results to Fresnel’s drag theory, hypothesizing that ether in the water, which he claimed was being moved against the light beam by the Earth’s motion around the sun, dragged the light beam and retarded its speed.

Was this correct? Many began to question Fizeau’s interpretation. If the Earth is moving through ether, then, for the light beam moving with the water, the speed of the light beam must be a combination of the speed of the water and the speed of the Earth’s motion around the sun. But Fizeau’s experiment did not show such a natural addition of velocities. He merely showed a change in the speed of light with respect to water, not ether.

In reality, the only difference Fizeau found on the speed of light was that it was affected by the water’s refractive index, not by the Earth’s presumed speed through the ether. Hence, it was presumptuous of Fizeau to assume the Earth was moving through the ether, since water moving in tubes on a non-moving Earth could easily account for why the light was slowed in his experiment.

D. Faulkner: Special relativity successfully resolves the paradox of these two apparently contradictory results, as well as explaining the other 19th-century aether experiments.

R. Sungenis: No it doesn’t. Danny is prone to make glib statement like this, but he presents no examples or proofs. It’s nice to talk big. Proving your case is another story altogether. If Danny ever tries to show how SRT can explain these, I’ve got some real surprises for him.

D. Faulkner: Another experiment that geocentrists like to talk about is one that George Airy (1801–1892) conducted in 1871. Airy used a water-filled telescope to measure stellar aberration. Based upon an aether drag theory then widely held, Airy expected to find a different amount of aberration of starlight than when using an empty telescope, but he found no difference. Geocentrists like to call this “Airy’s failure,” as if it were some great crisis in physics at the time. This misrepresents the paper. I’ve read it. There is no hint of alarm. Rather, it was a straightforward presentation of the experiment and its result. The conclusion was that a version of aether theory was disproved, but clearly other viable aether theories remained.

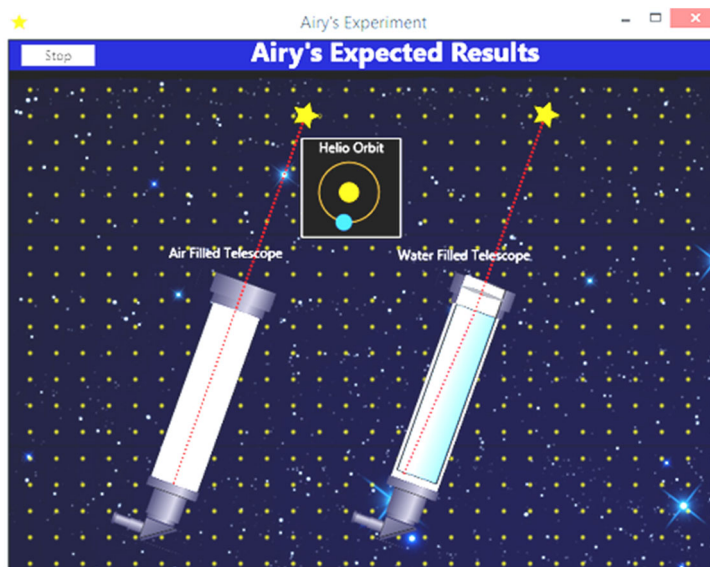
R. Sungenis: And what “aether theories” were they, Danny? Again, Danny is big on claims but presents no evidence. After reading Danny’s present paper that he has written for *Answers in Genesis*, I simply can’t trust him to tell the truth of either the history or the science of geocentrism. Contrary to Danny’s attempt

to downplay Airy's results, it was a "crisis" in science. I have a whole section on this in my book, *Galileo Was Wrong*. It was Einstein who was the most worried.

First, unlike Danny, I'll explain the experiment for you from *Geocentrism 101*:

The Experiment of George Airy

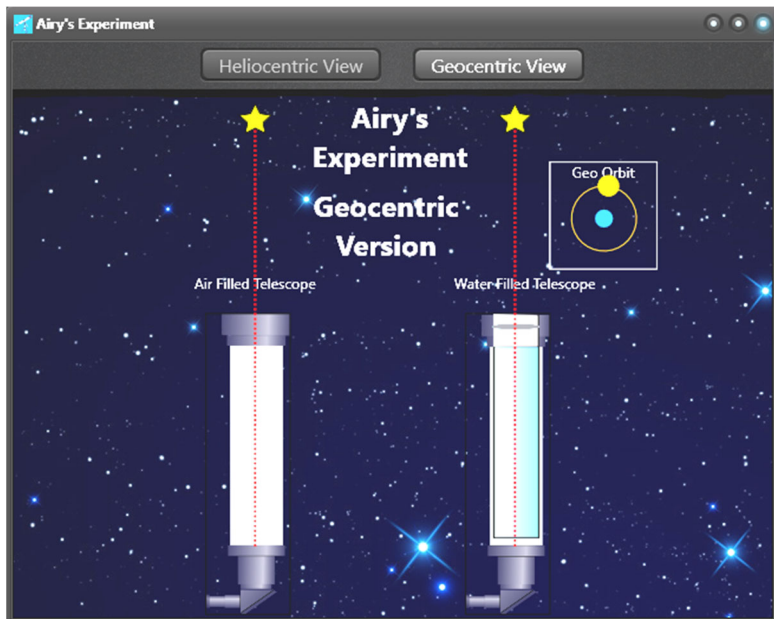
Obviously, more tests needed to be done to determine if the Earth was moving or not. Since Fizeau's experiment was inconclusive, Arago's results had to be tested by another method. **George Biddel Airy** (1801–1892) turned back to the stars. Advancing beyond Arago's and Fizeau's experiments, Airy had the ingenious idea of using two telescopes, but filling the second with water instead of air. Based on previous experiments, Airy reasoned that the starlight coming through the water-filled telescope would move more slowly than in the air and thus refract more, causing the starlight in the water-filled telescope to bend outward toward the side of the telescope so that the starlight would not hit the eyepiece directly.



(For animation see CD-ROM, p. 5, Airy Angle)

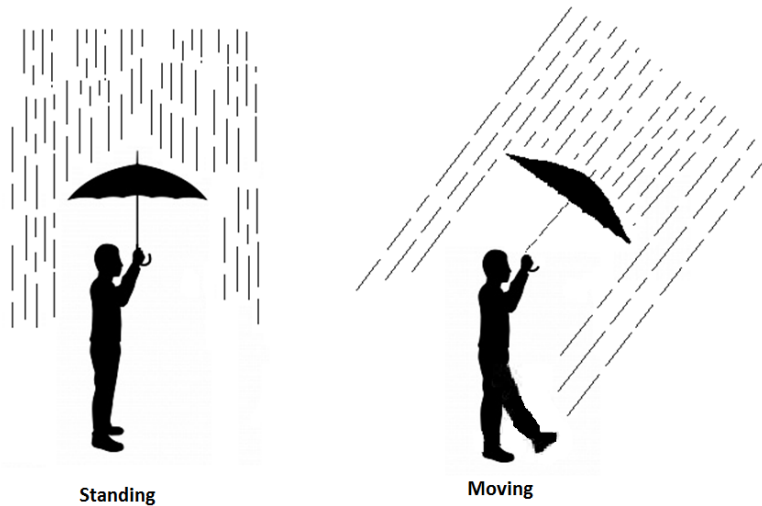


(For animation see CD-ROM, p. 5, Airy, heliocentric view)



(For animation see CD-ROM, p. 5, Airy, geocentric view)

Airy, as did most everyone else at the time, presumed the Earth was moving around the sun. Hence, in order to compensate for the anticipated outward bending of the starlight as it went through the water-filled telescope, Airy assumed he would need to tilt the water-filled telescope just a little more toward a lower declination so that the star's light would reach his eyepiece and avoid hitting the side of the telescope. The same principle holds for one walking in the rain with an umbrella. One must tilt the umbrella forward in order to stop the rain from hitting his body.



To his amazement, Airy found that it wasn't necessary to tilt the water-filled telescope. It captured the same amount of light from the same direction as the air-filled telescope. The starlight certainly moved more slowly through the water, but it did not refract and hit the inside wall of the telescope. It went straight into the eyepiece. This seemed to be a dramatic refutation of the heliocentric theory for it appeared that the Earth was not moving, for a moving Earth would have made the starlight hit the side of the telescope, but instead the starlight came straight into the telescope and hit the eyepiece without bending. Airy's experiment was thus dubbed "Airy's Failure." Effectively, the Earth appeared to be standing still in space, and, unlike before, the results could not be blamed on "dragged ether" or the "limited speed of light."

And now we will cover why the Fizeau and Airy experiments were a "crisis" for Einstein, from Galileo Was Wrong:

Einstein's Concern for the Fizeau and Airy Experiments

The Michelson-Morley experiment was not the only one that was of concern to Einstein, however. In fact, since Einstein was well aware of previous experiments with the same results, he probably would have expected a negative result from Michelson-Morley. We suspect this to be the case since interviews with Einstein show he was just as concerned with the results of experiments performed about 10-50 years earlier. Robert Shankland's interview with Einstein reveals the details:

Prof. Einstein volunteered a rather strong statement that he had been more influenced by the Fizeau experiment on the effect of moving water on the speed of light, and by astronomical aberration, especially Airy's observations with a water-filled telescope, than by the Michelson-Morley experiment.²²

²² Robert S. Shankland, "Conversations with Albert Einstein," *American Journal of Physics*, 31:47-57, 1963, and specifically the follow up report in 41:895-901, 1973, p. 896. Einstein repeated this same concern on a number of occasions, each time minimizing the impact of Michelson-Morley against Airy and the stellar aberration experiments. For a running commentary on these occasions, see Holton's *Thematic Origins of Scientific Thought*, pp. 191-370.

Why would the “Fizeau experiment” and “especially Airy’s observations with a water-filled telescope,” cause such consternation in the mind of Einstein? Very simply, Armand Fizeau and George Biddell Airy’s experiments are two of the foremost evidences of a motionless Earth ever produced. Einstein’s contemporary, Hendrik Lorentz, stated quite succinctly that these experiments put unbridled fear into the science establishment. In remarking on those same experiments Lorentz wrote this astounding admission: “Briefly, everything occurs as if the Earth were at rest...”²³ Eventually, it would take the full force of Relativity theory and its attendant Lorentzian-derived “transformation equations” to make even an attempt at explaining the amazing results of Fizeau, Airy and various stellar aberration experiments.²⁴ The Michelson-Morley experiment was merely a desperate attempt, using more sophisticated equipment, to overturn Fizeau and Airy’s findings, but as noted above, it failed to do so.²⁵

Einstein’s biographer probably didn’t even know this history when he wrote that men were faced with the possibility of “scuttling the whole Copernican theory” after the Michelson-Morley experiment. Unlike Einstein, most such biographers have fixated on the cart but were rather oblivious to the horse. All in all, we can say this much for Einstein: although his theories were certainly fantastic to the point of absurdity, at least he was smart enough to know from whence his opposition came. In the battle for the cosmos, the unexpected results of the Fizeau and Airy experiments had already put modern science on trial, but since they both produced anti-Copernican results, the clarion call of concern was not being trumpeted to the rest of the world. For the rest of his career Einstein would do everything in his power to stop it from sounding. As van der Kamp has stated: “Yes, I think I understand the sentiment motivating him. If we cannot prove what we *a priori* ‘know’ to be true [a moving Earth], then we have to find a reason why such a proof eludes us.”²⁶ And thus was born the theory of Relativity.

²³ From Lorentz’s 1886 paper, “On the Influence of the Earth’s Motion of Luminiferous Phenomena,” as quoted in Arthur Miller’s *Albert Einstein’s Special Theory of Relativity*, p. 20. Although Miller, an avowed heliocentrist, does not admit to a concern that the Copernican system might be overturned by the Fizeau/Airy evidence, his consistent references to being required to view things from the “geocentric system” shows that he is at least aware of the differences (e.g., “The stellar aberration of light from a fixed star is observed in the *geocentric system*...If, in the *geocentric system*, c was the light velocity from a star – v was the star’s velocity relative to the Earth (i.e., $v = 30\text{km/sec}$ which is the Earth’s velocity relative to the sun)...At the time t in the *geocentric system* there is a point P on a spherical wave front, and the wave is traversing a medium of refracted index N that is at rest on the Earth...Consider, in the *geocentric system*, a water-filled telescope...Lorentz continued (1886), by noting that from the viewpoint of the *geocentric system*... (pp. 15, 19, emphases added). Also revealing are the times Arthur Miller makes such statements as: “optical phenomena were unaffected by the Earth’s motion” or “interferometer experiments could not detect the Earth’s motion...” (p. 20) yet, because he has accepted heliocentrism as an absolute, he cannot find it within himself to entertain the possibility that the Earth is actually not in motion.

²⁴ Arthur Miller claims “Einstein did not have to discuss the experiments of Airy and Arago because special relativity theory reduced their observations to a foregone conclusion.” As we can see from Shankland’s interview (above), Miller is quite wrong about Einstein’s motivations. Not only did Einstein “discuss...Airy,” but he considered it a formidable puzzle that had to be answered.

²⁵ As physicist Herbert Ives reminds us: “It must not be forgotten in the discussion of this subject that the Michelson-Morley experiment...only demands invariance of light signals with the velocity of the moving platform of measurement *on the premise that the Earth is moving* – there is no other motion involved in the experiment. If this is not agreed to then the null result proves nothing with regard to invariance, and the whole discussion is futile” (“Light Signals on Moving Bodies,” *Journal of the Optical Society of America*, July 1937, Vol. 27, p. 271, emphasis added). The corollary, of course, is that the Earth may not be moving.

²⁶ *De Labore Solis*, p. 43. As we will see shortly, all claims that the Earth is moving based on stellar aberration are presumptuous, since from Airy’s experiment it has been proven that the necessity of tilting a telescope to catch all of a star’s light is due to a fixed Earth in a moving star system, not a moving Earth in a fixed star system. Interestingly enough, the type of experiment Airy performed was suggested more than a century earlier in 1766 by Ruggiero Giuseppe Boscovich (1711-1787), a Jesuit astronomer, and again by Augustin Fresnel in 1818, which may have been the source of Airy’s idea. In 1746 Boscovich published a study on the elliptical orbits of the planets based on the Copernican system (*De Determinanda Orbita Planetae ope catoptrica*, Rome 1749). He published a second edition in 1785 (*Opera Pertinentia ad Opticam et Astronomiam*, Bassan, 1785). Perhaps if Boscovich had had the good fortune to perform an Airy-type experiment, he might have thought twice about adopting the Copernican system.

When one reads Einstein's works, there appears to be no ostensible concern that these experiments could "scuttle the whole Copernican theory," nevertheless, there is an undercurrent in his writings that he is indeed cognizant of such implications yet does his best not to alarm the world. Even in private his concerns are subtle. For example, in an exchange with Willem de Sitter in 1917 over whether the universe was a "3-dimensional hypersphere embedded in a 4-dimensional Euclidean space" or a "4-dimensional hypersphere embedded in a 5-dimensional Euclidean space," Einstein objected to de Sitter's 4-5 model based mainly on the fact that it had "*a preferred center*."²⁷

Relativity theory, by its very nature, is especially susceptible to anti-Copernican interpretations since for everything that Relativity claims for itself by a moving Earth in a fixed universe can easily be "relativized" for a fixed Earth in a rotating universe. In fact, stellar aberration was indeed a major concern of Einstein's for that very reason, since Relativity theory, in principle, demands equal viability for both of the aforementioned perspectives.²⁸ Einstein's concern was justified. As we will see, Airy's experiment threw a wrench into the reciprocity of Relativity, for it demonstrated that it really does make a difference whether the Earth is moving or at rest in regard to how light from a star travels through a telescope mounted on the Earth. Consequently, Einstein could not "relativize" the results of Airy's experiment since stellar aberration provided a distinction he could not readily overcome. Consequently, Einstein would be forced to resort to the *ad hoc* "field transformation" equations of Hendrik Lorentz to answer Airy's results; and although others didn't voice their opinions too loudly for fear of being ostracized, everyone knew that Einstein's efforts were just mathematical fudge factors. There was one inescapable fact that Airy's telescope was revealing: barring any mathematical fudging, Earth was standing still and the stars were revolving around it, not vice-versa. Hence, the importance of the Michelson-Morley experiment was that it confirmed, by a significantly different kind of experiment, the same results that Airy found in his water-filled telescope sixteen years earlier. But before we get to Airy's actual experiment we need to cover the history that led up to it.

The Experiments of James Bradley and George Airy

Twenty years after Fizeau's experiment, George Biddell Airy would perform his own water-tube experiment, which, to his utter surprise, would confirm Arago's results – that Earth was standing still in space. Although Fresnel temporarily saved the world from having to scuttle the Copernican theory, we will see that the nature of Airy's experiment left Einstein with no choice but the fantastic postulations of Relativity theory to answer Airy's results.

George Airy belonged to the exclusive Astronomer Royal of England. He was a well-respected scientist and had quite a reputation and audience for his endeavors. But Airy was an avowed heliocentrist just as

²⁷ "The Einstein-De Sitter Debate and Its Aftermath," Michael Janssen, University of Minnesota, p. 3.

²⁸ Einstein demonstrated this in his 1911 paper "Über den Einfluß der Schwerkraft auf die Ausbreitung des Lichtes," *Annalen der Physik*, 35, 903f. According to Einstein, the argument of whether the Earth rotates or the heavens revolve around Earth is understood as nothing more than a choice between reference frames. The Earth's poles would flatten from either reference frame, says Einstein. In the frame of a rotating Earth in a fixed star system, the centrifugal force is a consequence of the Earth's uniform acceleration relative to the fixed stars. In a fixed Earth frame, Einstein says the centrifugal force is attributed to the effect of "the rotating masses" [stars] that are generating a gravitational field that causes the Earth's poles to flatten. The two frames are said to be equivalent, since there is equivalence between inertial mass and gravitational mass. As we will see later, the flattening of the Earth's poles occurs, according to Einstein, because the gravity of the stars creates a curvature of the space-time fabric surrounding the Earth.

Einstein, so it is not Airy's position as an esteemed scientist for which we make reference to his work, but precisely because of his failure to prove his cherished view of cosmology. Airy was quite certain, at least before he did his experiment, that his water-filled telescope would prove the Earth revolved around the sun. Hence, he was quite surprised at his "failure."

Here's how "Airy's failure" transpired. Airy knew from Arago that: (1) light's speed was slower in a solid transparent medium than in air; (2) that any movement ascribed to the Earth did not affect the speed of light, and (3) that Fresnel's explanation of Arago's experiment was that the glass plate "dragged" the ether and acted independently of ether in the air. Airy, by merely enhancing the procedures of those before him, decided to use a source of light outside Earth, namely starlight, and direct it through different mediums to see if the light was affected.

Before we see what Airy's experiment did in the battle for whether the Earth was fixed in space, it would be beneficial to know a little of the history about the nature of starlight. As early as 1640 the astronomer Giovanni Pieroni observed that various stars shifted their position in the sky during the year. As we noted earlier, Francesco Rinuccini brought this evidence to Galileo's attention in 1641, but Galileo was unimpressed. Robert Hooke, three decades later, in 1669, noticed the same kind of shifting for one star in particular, *Gamma Draconis*. Since everyone from the time of Copernicus had been looking for physical evidence of a moving Earth, Hooke actually thought he had discovered the first parallax as its proof. Almost another thirty years later (1694), John Flamsteed observed the same kind of shifting in the star Polaris.

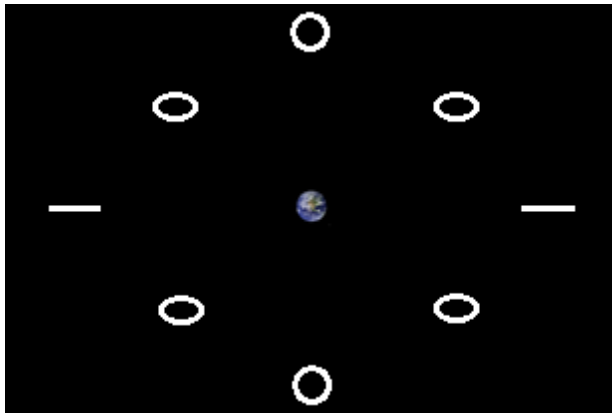
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James Bradley and *Gamma Draconis*

Another thirty years later, James Bradley (d. 1762) set out to determine whether Hooke's observations were, indeed, a parallax of *Gamma Draconis*. During the years of 1725-1728 he noticed that during the course of a year the star inscribed a small ellipse in its path, almost the same as a parallax would make. In the heliocentric system, parallax is understood as a one-to-one correspondence between Earth's annual revolution and the star's annual ellipse, but Bradley noticed that the star's ellipse was not following this particular pattern.²⁹

²⁹ Parallax, as measured from Earth, is understood as the measure of the apparent movement of a star against more distant stars that do not move. There are about 700 stars in our sky that are close enough to Earth and far enough from background stars in order to form a parallax. In the heliocentric system, which Bradley was using, a star's parallax is measured by using the Earth's orbit. At each point on the Earth's path, a star with parallax will appear on the opposite side of the Earth's orbit in the star's ellipsis. For example, in the heliocentric system, if the Earth is at twelve o'clock in its orbit the star will be at six o'clock in its ellipsis; if Earth is at three o'clock, the star will be at nine o'clock. In stellar aberration, the Earth and the star will not be on opposite sides of their respective ellipses. So, if the Earth is at twelve o'clock in its orbit, the star will also be at twelve o'clock in its ellipsis. Bradley noticed that *Gamma Draconis* was following the stellar aberration pattern, not the parallax pattern, since it was behind the parallax pattern by at least three months. Bradley found a 20.47° angle of aberration. As we will see later, stellar aberration can also be explained by the geocentric model, since in that model the stars are centered on the sun and partake of the sun's annual movement around Earth, and thus stellar aberration will occur in exactly the same proportions as in the heliocentric system. Incidentally, Bradley also discovered that *Gamma Draconis* traced out an additional smaller ellipse in the course of 18.6 years. The heliocentric explanation for this ellipse is that the moon, since its orbital precession rotates around Earth once every 18.6 years, is altering the Earth's axial spin (otherwise known as nutation). This explanation fails, however, since it would require each star to have the same 18.6 year ellipse as *Gamma Draconis*. The geocentric explanation for the 18.6 year ellipse is that, as the universe rotates around Earth, a slight uneven mass distribution causes a small precession of the universe of 18.6 years, which is part of a larger precession of 25,800 years (the heliocentric system has a 25,800-year precession of the Earth's axial rotation). These dual precessions, in



Stellar aberration as seen from Earth

At this point, astronomical science was still waiting for a confirmed parallax of any star, since no one had ever measured one. A confirmed measurement of parallax would not be made until more than a century later by Friedrich Bessel in 1838. So Bradley, reasoning that *Gamma Draconis* was too far away to register a parallax, found another explanation, and it was a rather ingenious one. He theorized that the star's annual ellipse was being formed because the speed of light was finite.³⁰ That is, the star wasn't actually moving in the sky; rather, its light, moving at a finite speed, was hitting a moving Earth, an Earth that for six months was moving toward the star, and in the next six months was moving away from the star. While the Earth moved toward the star, the star's light would hit the Earth sooner, but while the Earth moved away, the light would hit it later. Bradley reasoned that, if light's speed was infinite, there would be no such effect, but since it is finite, these back-and-forth movements of the Earth would translate into seeing the star move in an ellipse over the course of a year. This explanation was a welcome relief for the heliocentric view, since until Bradley no one, including Galileo who died in 1642, had supplied any real evidence that the Earth could be revolving around the sun.³¹

The only "evidence" Galileo's contemporaries provided was that of analogy, that is, because he saw moons revolving around Jupiter through his telescope he conjectured that smaller bodies (such as the Earth) had to revolve around larger bodies (such as the sun). As one author put it, in Galileo's day, "the telescope did not prove the validity of Copernicus' conceptual scheme. But it did provide an immensely effective weapon for the battle. It was not proof, but it was propaganda."³² Thus, the

conjunction with the stars that move within those precessions in a specified elliptical path depending on their distance from Earth, distance from the North Star (Polaris), and their mass, will create a specified ellipse for each star, as seen from Earth.

³⁰ Up until this time, the only one who had suggested that light had a finite speed was Ole Römer in 1670 as he was observing the variations between two successive eclipses of Io, one of Jupiter's moons. The eclipse is the shortest in duration when, in the heliocentric system, Earth is moving toward Jupiter, and longest in duration when Earth is moving away. As we will see later, this same phenomena can be explained by the geocentric model since in that model, Jupiter, revolving around the sun, is moving toward and away from a fixed Earth in the same proportions as in the heliocentric system.

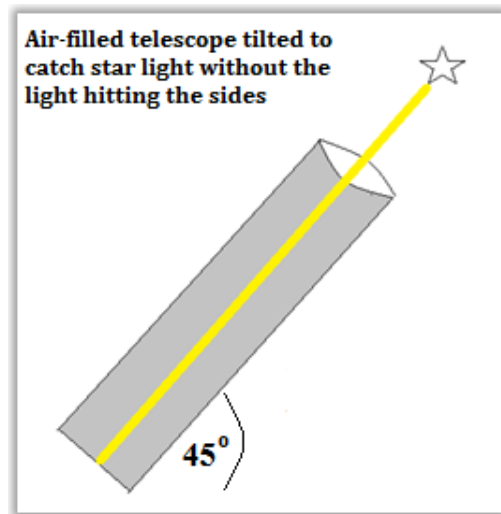
³¹ As one modern astronomer presumptuously concluded: "The discovery of this aberration was the first experimental proof that the earth has a yearly motion and that Copernicus was right" (A. Pannekoek, *A History of Astronomy*, 1961; originally published in 1951 under the Dutch title: *De Groei van ons Wereld*, cited in *The Biblical Astronomer*, Vol. 3, No. 64, 1993).

³² Thomas Kuhn, *The Copernican Revolution*, 1959, p. 224. Kuhn adds: "The opposition took varied forms. A few of Galileo's more fanatical opponents refused even to look through the new instrument... Others...claimed...they were apparitions caused by the telescope itself. Most of Galileo's opponents behaved more rationally. Like Bellarmine, they agreed that the phenomena were

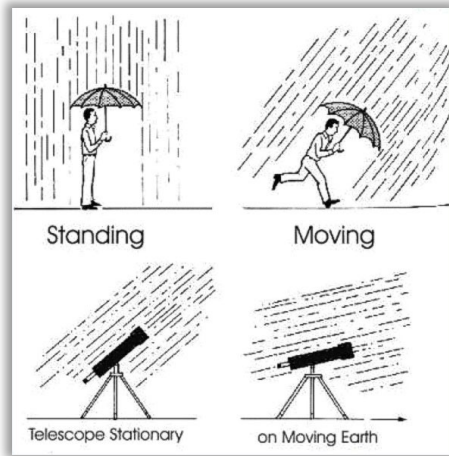
Arago/Fresnel/Fizeau affair was more or less an interlude until someone would come along and either prove or disprove Bradley's hypothesis.

Enter **George Airy** (1801 – 1892). As ingenious as Bradley's answer was to the ellipse formed by *Gamma Draconis* so was Airy's experiment to prove it right or wrong. Accepting that light's speed was finite, Airy had to figure out some way of determining whether the light from a star was affected by Earth's presumed motion. Whereas Bradley used only one kind of telescope, Airy had the ingenious idea of using a second telescope standing right next to the first telescope, but filled with water instead of air. Since Arago/Fresnel/Fizeau had already shown that light's speed was slowed by glass or water, Airy assumed that if a telescope was filled with water then the starlight coming through the water should be slower than it would be in air and thus bend the starlight outward toward the side of the telescope and away from the eyepiece (just as we see light bent when we put a pencil in water). In order to compensate for the outward bending of the starlight, Airy assumed he would need to tilt his water-filled telescope just a little more toward the lower end of the star so that its light would hit his eyepiece directly rather than hitting the side of the telescope.

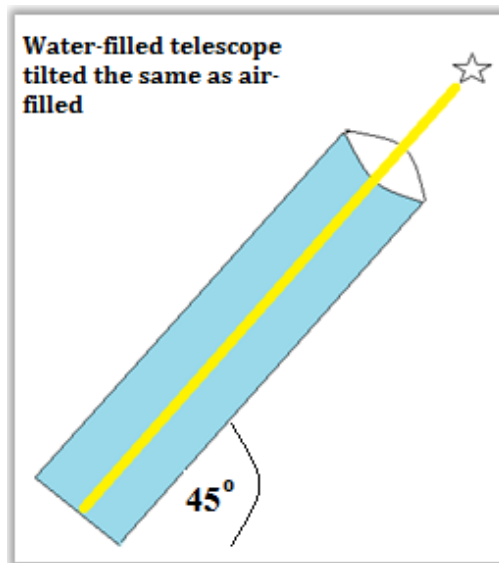
One would do the same, for example, if he were carrying a drinking glass while he were running through a rainstorm. In order to catch the raindrops so that they hit the bottom and not the side of the drinking glass, one must tilt the drinking glass forward a bit in order to compensate for one's running speed. Another example that illustrates this principle rather well is the task of dropping a drop of water into a test tube from an eye-dropper. If the test tube is mounted so that it stands straight up on a rotating disc and one tries to drop a drop of water into the test tube as it comes around, the drop will invariably hit the inside of the test tube. One must tilt the test tube slightly in the direction of the rotation in order to allow the drop to hit the bottom of the test tube. Light, because it reacts as if it were a substance, moves in a similar fashion to the drop of water (only it moves much faster than rain and eye drops and thus the effects are much more subtle).



in the sky but denied that they proved Galileo's contentions. In this, of course, they were quite right. Though the telescope argued much, it proved nothing" (*ibid.*, p. 226).



Although Airy had suspected the outcome prior to the actual experiment, indeed, he soon discovered that he was not required to tilt his water-filled telescope toward the star to any greater degree than his air-filled telescope.



These results indicated that Earth wasn't moving, since if there is no additional adjustment necessary for a water-filled telescope toward the direction of the starlight it means the starlight is coming into both telescopes at the same angle and speed. If Earth were moving, then a water-filled telescope would have to be titled toward the starlight a little more acutely than an air-filled telescope. This is so for two related reasons: (1) in the heliocentric model, the Earth is moving sufficiently against the incidence of starlight upon it, and thus the water-filled telescope would not be able to catch all of the starlight in the slower medium of water. It would have to be titled slightly ahead of the air-filled telescope to make up for light's slower speed in water; and (2) since the starlight is coming from outside Earth's ether environment, then one cannot readily explain Airy's failure by saying that the denser medium (*i.e.*, water as opposed to air) carried a higher or lower amount of ether, as Fresnel had claimed. Starlight seemed to be unaffected by

the ether, or any medium, since Airy proved that its light was coming to Earth at one specified angle and speed.³³

At this point we should mention the fact that Bradley's appeal to a 20.5" arc in the star's movement as being due to a 30 km/sec revolution of the Earth around the sun assumes that the sun is a fixed object. Without taking the sun as fixed, Bradley would not be able to detect any aberration in *Gamma Draconis*. But according to modern cosmology, no object in the sky is fixed, and thus Bradley's theory is nullified on that count alone. Otherwise, the sun is at rest or Relativity is wrong.

As we noted earlier, Arago had already postulated in theory what Airy found by experiment. Arago wrote a paper on the subject in 1839 and thus the science establishment should have anticipated Airy's results.³⁴ In 1766 Giuseppe Boscovich, and afterward Augustin Fresnel in 1818, had also recommended testing Arago's hypothesis by a water-filled telescope. In Airy's experiment, the water-filled telescope would be analogous to Arago's glass plate (or the glass-filled telescope example we offered earlier), since both would make light travel at a slower speed than in air. Fresnel, being a firm believer that the Earth revolved around the sun in an ether medium, explained Arago's results by claiming the glass plate trapped the ether and thus dragged it and the light, giving the appearance of the bending of light in the glass plate. In fact, Fresnel would be quite satisfied in assuming that the plate dragged the ether just enough to be equal to the Earth's presumed movement around the sun.³⁵ But it was not easy for Fresnel to explain Airy's failure, because Airy found, with respect to two different telescopic mediums, there is no additional drag of starlight by the ether surrounding Earth. In other words, if Earth were moving, it would be moving against the ether, and thus the ether wind would be expected to push the starlight past the telescope. Airy showed that the ether was not pushing the starlight faster through one medium than the other since both telescopes viewed the star from the same angle. Fresnel would also not be able to explain Airy's failure if he claimed that the ether is moving with the Earth instead of against the Earth, otherwise he would have no more explanation why, in Arago's case, light is diffracted more in a glass plate than in air. Science was in a bind once again. Unless Airy's experiment could be answered, the world was about to stand still in space, both literally and figuratively.³⁶

³³ George B. Airy, "On a supposed alteration in the amount of astronomical aberration of light produced by the passage of light through a considerable thickness of refracting medium" (Proceedings of the Royal Society, London, 1871, pp. 35-39). As Arthur Miller describes it by means of a diagram: "Consider, in the geocentric system, a water-filled telescope whose line of sight to a star is normal to the direction of the star's velocity relative to the Earth which is $-v/N^2$ (according to Fresnel's hypothesis). The law of sines yields $\sin \delta' = v/cN$. Since the starlight is refracted on entering the water then δ' is not the aberration angle. Using Snell's law to relate v and δ' , i.e., $\sin \delta = N \sin \delta'$, we obtain $\sin \delta = v/c$. This derivation is based on the ones of Veltmann (1873), Lorentz (1886) and Drude (1900). The notion of seeking deviations from stellar aberration in air by using a water-filled telescope had been suggested by Boscovich in 1766, and was mentioned by Fresnel (1818), who predicted no change because this experiment was equivalent to Arago's. Airy (1871) carried out the experiment and found no change in the aberration angle" (*Albert Einstein's Special Theory of Relativity*, p. 19).

³⁴ *Comptes Rendus de l'Académie des Sciences*, 8, 326, 1839.

³⁵ In other words, the angle of refraction in the glass plate will equal the arc seconds Earth moves in its angular journey around the sun, since both are formed by Earth's movement through the ether. Incidentally, although we emphasize that Fresnel was a "heliocentrist," Arago and Airy were also heliocentrists, and thus "Airy's failure" is a failure for heliocentrism.

³⁶ Aware of the acute dilemma for heliocentrism that Airy's experiment presents, an example of how modern science seeks to rationalize its results is noted in the explanation of S. Tolansky on the art of telescope viewing: "If the Fresnel drag coefficient be introduced into the calculation of the aberration, there emerges the fact that the aberration is the same with or without water in the telescope. Thus, conversely, Airy's negative result confirms the validity of the Fresnel coefficient" (*An Introduction to Interferometry*, 1973, p. 98, cited in *De Labore Solis*, p. 35). What Tolansky didn't tell his students is that if the Fresnel coefficient is NOT used for both telescopes, they would both still produce the same aberration, and thus the Fresnel drag becomes superfluous, except for those trying to save the appearances for heliocentrism. As van der Kamp notes, "...the drag coefficient cannot be dragged into court to vindicate Copernicus" (*op. cit.*, p. 36). Another objection comes from Wolfgang Pauli. With his typical pungency,

D. Faulkner: Another example of how geocentrists mishandle data is the Sagnac experiment. In 1913, George Sagnac (1869–1928) conducted an experiment with an interferometer mounted on a platform that could spin. When the platform did not spin, the experimental results showed that the speed of light was the same in all directions. However, when the platform spun, the speed of light in the direction of spin was different from the speed of light in the direction opposite the spin direction. Apparently, Sagnac’s motivation was to demonstrate that the aether that Einstein supposedly eliminated indeed existed (Einstein had not yet walked back his pronouncement about there being no aether).

R. Sungenis: So, are we supposed to pay attention to the 1905 Einstein who eliminated the aether or the 1920 Einstein who accepted the aether? Danny doesn’t tell us.

D. Faulkner: Unknown to Sagnac, two years prior to his experiment Max von Laue (1879–1960) had predicted the Sagnac effect, as the phenomenon Sagnac first demonstrated, is called. Laue did this within a version of aether theory, a version that was compatible with general relativity. The Sagnac effect is the basis of laser gyroscopes and fiber-optic gyroscopes, which in recent years have replaced mechanical gyroscopes in many inertial navigation systems.

R. Sungenis: I don’t know anywhere that it says von Laue predicted the Sagnac effect. Reference, Danny? I do know this, however. Max von Laue was ‘all in’ with Einstein’s Special relativity theory and thus he had to be ‘all in’ on eliminating the aether, as noted in this quote I have in *Galileo Was Wrong*:

Thus, a new epoch in physics created a new mechanics...it began, we might say, with the question as to what effect the motion of the Earth has on physical processes which take place on the Earth...we can assign to the dividing line between epochs a precise date: It was on September 26, 1905, that Albert Einstein’s investigation entitled ‘On the Electrodynamics of Bodies in Motion’ appeared in the *Annalen der Physik*.³⁷

Pauli wrote in 1958: “The Airy experiment, as seen from the rest system of the observer (Earth), therefore only demonstrates the (relativistically) trivial fact that for a zero angle of incidence (normal incidence) the angle of refraction is zero, too” (Wolfgang Pauli, *Theory of Relativity*, translated by G. Field, 1958, p. 114). Apparently, Einstein did not share the same casualness about Airy that Pauli did. Pauli seems to have both forgotten that neither the “observer” nor the “Earth” are “at rest” in the Copernican system, and that a “zero” value to both incidence and refraction is precisely the reason Airy’s experiment is so important, since, given the same incidence of starlight in both telescopes, only the Earth’s velocity would have made the starlight hit the side of the telescope. Moreover, it would be rather difficult for Relativity to explain stellar aberration on the basis of the limited speed of light, since without ether, Relativity must understand light as a scalar phenomenon (*i.e.*, it has a speed but no definite direction, and thus the speed is everywhere the same), not a vector (*i.e.*, a definite speed in a definite direction). As such, Relativity will see the star rotate rather than exhibit an aberration. Other attempts to explain Airy’s failure use the Fitzgerald contraction hypothesis, that is, the telescope shrank in the direction it was moving, or that the telescope expanded in the direction perpendicular to its movement. It may be no coincidence that the Fitzgerald contraction predicts the same result for Airy’s experiment as the Fresnel drag. Thus, as Bouw notes: “Physically speaking, if they are real, both effects must be contributing so that in actuality we must either conclude that Fresnel drag and the Fitzgerald contraction are one and the same thing or else that one effect or the other, but not both, is in operation. If the Fitzgerald contraction is removed then the only conclusion left is that the earth is standing still; otherwise, if Fresnel drag is removed, the question remains as to why Fresnel drag is observed in the laboratory but not in this analogous case. The simplest solution is that the earth is at rest, immobile, in absolute space” (*Geocentricity*, p. 244).

³⁷ *Albert Einstein: Philosopher-Scientist*, p. 523. Einstein does not specifically mention either Michelson-Morley’s experiment or any other preceding experiment in “On the Electrodynamics of Moving Bodies,” rather, he makes allusion to all of the preceding experiments with light in the statement: “...the unsuccessful attempts to discover any motion of the Earth relatively to the ‘light medium.’”

So, how is it, as Danny claims, that von Laue has an aether theory that contradicts the no-aether theory of the 1905 Einstein, especially since von Laue supports, above, the 1905 theory? Danny is playing a shell game here.

Actually it makes little difference what von Laue “predicted,” since the Sagnac experiment proved the aether existed, as Sagnac himself said. So precise is the Sagnac effect that, as Danny admitted, they use the same device in all kinds of navigation systems today. But at this point Danny has himself and Einstein between an aether and a no-aether universe. Which is it, Danny? What he will do later is what all Einsteinian relativists do when they get stuck, namely, they will appeal to whatever theory, Special or General, that gives them an escape out of their quandary.

D. Faulkner: In 1925, using a much larger interferometer and replacing the spinning platform in the lab with the spinning earth, Michelson and Henry Gale (1874–1942) measured the Sagnac effect due to the earth’s rotation.

R. Sungenis: Danny doesn’t know it’s the “earth’s rotation.” All he knows is that there was an aether wind that went through the vacuum pipes of Michelson’s interferometer. What caused the aether wind to go in a particular direction is up for discussion. But notice that Danny accepts that the 1925 Michelson-Gale experiment worked to measure a rotation. This means that he accepts the aether basis for the experiment. But if he thinks the 1887 Michelson experiment was not valid because Einstein said there was no aether for it to measure the earth’s movement around the sun, then why is Danny accepting the 1925 experiment that used the same aether principle to measure light speed as the 1887 experiment? Danny has certainly got me confused as to what his position really is. He wants his cake and eat it, too. And now, watch Danny do his foot dance below:

D. Faulkner: Note what geocentrists do here. They claim that the Michelson-Morley experiment proved that the earth is not revolving around the sun, and they often follow this with mention of the Michelson-Gale experiments to argue that motion, if it exists, is detectable. The geocentrists’ argument seems to be that the positive result of the second experiment indicates that the negative result of the first experiment means the earth does not revolve around the sun. But, to be consistent, doesn’t that require that geocentrists to acknowledge that the earth is rotating? While a few geocentrists believe that the earth is rotating, most do not. Thus, their argument is a bit muddled.

R. Sungenis: The only one “muddled” here is Danny Faulkner. Obviously, if the 1925 Michelson-Gale experiment detected an aether drift commensurate with our daily sidereal rate, but it isn’t the earth rotating in space, then the space must be rotating around the earth, which is exactly what geocentrism teaches.

But that’s not all. Danny is in a real conundrum here. Since he claims the 1925 Michelson-Gale experiment was a redo of the Sagnac experiment and he holds to the validity of the Sagnac experiment that used aether in space as the basis, then how can he use Special Relativity, which is based on no aether in space, to answer the 1887 Michelson-Morley experiment??

To say it another way, Danny needs evidence for both a revolution of the earth around the sun and evidence that the earth rotates on an axis. Without that evidence, heliocentrism is falsified. Unfortunately

for Danny, the experimental evidence shows only a rotation (Michelson-Gale) but it does not show a revolution (Michelson-Morley). Since both experiments used the existence of aether as the basis for the light wave interference, then Danny can mount no excuses.

For us, the two experiments prove that the best answer is geocentrism. Since geocentrism says that the universe/space rotates around a fixed earth each day, but the earth does not revolve around the sun, then the two experiments, Michelson-Gale and Michelson-Morley, show that geocentrism answers all the empirical evidence. I don't know how much simpler it could be.

D. Faulkner: How are the results of these two experiments properly understood? The answer is not simple, but it comes down to there being a fundamental difference between rotation and other motions. A rotating frame of reference is a non-inertial frame, and hence the speed of light may vary, in accordance with the Poincaré-Einstein postulate. Ergo, in such a reference frame the speed of light is not the same in all directions.

R. Sungenis: Sorry, rotation is not going to answer the problem. Yes, a single light beam travels at a different speed in a rotating reference frame than in an inertial frame. It's the very reason that geocentrists say that light speed in a rotating universe is much faster than the inertial speed of light at the surface of the earth. But this can't be used for the Sagnac or Michelson-Gale experiments.

The reason is that there were two light beams used in both experiments, and they were right next to each other in a circular or rectangular frame, respectively. In other words, in Sagnac's experiment the two light beams were both confronted with a circular frame in which to travel and thus both were affected by however rotation affects light beams. So they were both on even footing as far as the circular frame was concerned. That is, in whatever way the circular frame affected one beam, it would affect the other also. The real difference in the light beams, however, was that they were going in opposite directions. One was moving clockwise; the other was moving counterclockwise. What Sagnac found (and Michelson-Gale) is that it was always the clockwise beam (or west to east) that was moving slower than the counter-clockwise beam (east to west).

This is simple for the geocentrist to answer, since the east-west rotation of the universe against the fixed earth is going to impede any light beam that is moving west-east. We see this phenomenon also in the GPS system. Light beams that travel west-east against the east-west rotating aether are slower by 50 nanoseconds than light beams traveling east-west with the east-west rotation of the aether.

D. Faulkner: Special relativity explains all the seemingly contradictory 19th-century light experiments.

R. Sungenis: Really? Then show us, Danny, instead of making blanket statements without evidence. I know for a fact that Special Relativity has a very difficult time explaining stellar aberration, stellar parallax and Airy's failure. And while you're at it, show us how Special Relativity explains Michelson-Gale, especially since Michelson-Gale was based on aether.

D. Faulkner: But geocentrists want none of it. They wish to hang on to vestiges of 19th-century aether theories, though they are selective about which parts they want to keep.

R. Sungenis: Another case of the pot calling the kettle black. Danny's already admitted that Einstein took back the aether in General relativity that he had discarded in Special relativity, and he has yet to explain

what Einstein's new aether is composed of to be substantially different than the "19th-century" aether. In both, the aether is the medium for light, so the only thing different between them is the Lorentz's aether moves and Einstein's doesn't. But I'll take either one, Lorentz's aether or Einstein's aether. What I do know is that there is an aether, since obviously it cannot be "nothing" between the sun and earth, for "nothing" does not exist, by definition. What I do know is that Michelson-Morley didn't measure an aether for an earth supposedly moving around the sun at 30km/sec, but Michelson-Gale measured an aether drift that was 98% of the sidereal rate of .49km/sec. The first tells me that the earth is fixed in space; the second tells me that space rotates around the fixed earth. It couldn't be simpler. Both experiments are satisfied.

D. Faulkner: A decade after Einstein published his special theory of relativity, he published his theory of general relativity. Whereas the special theory treated objects moving at constant velocity, the general theory dealt with objects undergoing acceleration. One of the tricky aspects of general relativity is to establish a reference frame in which accelerations can be expressed. Of particular interest in this regard is centripetal acceleration required for spinning motion. Einstein was impressed with what has become known as Mach's principle. Though attributed to Ernst Mach (1838–1916), physicists had pondered this question long before Mach. Consider an object that is spinning. From the perspective of the spinning object, everything else in the universe is spinning around the object. So, can one determine whether the object is spinning, or if the rest of the universe is spinning? If an object is spinning rapidly enough, then there will be a noticeable centripetal acceleration present. A centripetal (toward the center) acceleration is the acceleration required when any object moves along a curved path. Otherwise, the object would move in a straight line in accordance with Newton's first law of motion. This means that the object is not in an inertial frame of reference, so physics will not operate in this frame of reference as it does in a non-spinning reference frame. For instance, in a spinning frame of reference, things appear to sling outward. We often attribute this phenomenon to "centrifugal force." However, to a person witnessing these things in an inertial frame of reference, things are not slung out by this mysterious centrifugal force. Instead, things move along straight lines in accordance with Newton's first law of motion. Note that centrifugal force is not a real force, if one properly observes what is going on in an inertial frame of reference. Rather, centrifugal force is a fictitious force one must make up when observing motion in a non-inertial frame of reference.

R. Sungenis: "Fictitious force"? Notice how Danny primes you to accept that a force is not real.

D. Faulkner: Let's put this into a human example. If you stand outside at night with your arms hanging limply to your sides, the stars overhead will appear stationary. If you spin quickly, the stars will appear to spin in the opposite direction. At the same time, your arms will mysteriously rise. We would attribute this to centrifugal force. How do your arms know to do this? Mach's principle states that your arms respond this way because the distant and massive stars provide a stationary frame of reference that your rotation can be measured in. That is, distant matter provides the frame of reference for local matter. If any notion of absolute space exists, then hidden in Mach's principle is the assumption that, on average, the matter of the universe is at rest to absolute space. Notice that this is an assumption, not established fact. Hence, Mach's principle ought to be called "Mach's conjecture." This is more of a philosophical point, and one may question whether physicists are particularly good at philosophy. But, as I said earlier, any system must begin with a few basic assumptions, including physics. We have built inside of us

the understanding that there must be some absolute standard of reference, but no one really has a clue as to how to formulate it. Mach's principle probably comes closest.

Geocentrists like to argue that Mach's principle agrees with their position. There are many variations on Mach's principle. Some of them aren't formulated well, and some are just wrong.

Geocentrists like to argue that Mach's principle agrees with their position. There are many variations on Mach's principle. Some of them aren't formulated well, and some are just wrong. For instance, geocentrists sometimes claim that Mach's principle means that all motion is relative. This isn't true. Geocentrists also like to talk about the work of Josef Lense (1890–1885) and Hans Thirring (1888–1976). Geocentrists often claim that Lense and Thirring developed a cosmology with a stationary earth and a universe moving around it. Lense and Thirring worked out the details of frame dragging in general relativity. It's this sort of model that DOTGU argued for. Within such a framework, it is possible to construct a geocentric model with a rotating universe. However, and this is important, it is based upon general relativity, something that geocentrists generally oppose. How can they appeal to a cosmology that has as its foundation a physical theory that they don't believe to be true? I also should make it clear that Lense and Thirring were not seriously suggesting geocentrism, but only that one could construct such a cosmology within the confines of general relativity.

Earlier I raised the question of how geocentrists explain the Foucault pendulum. A few geocentrists are consistent and believe that the earth rotates but does not revolve, so the Foucault pendulum is no problem for them. For the rest, they often argue a version of Mach's principle. They would say that it is the moving firmament (their term for space, based upon the King James Translation of the Hebrew word *raqia* in Genesis 1) that the plane of the swing stays aligned with. This is in conjunction with the work of Lense and Thirring, arguing that a rotating universe produces centrifugal force. Again, how can one appeal to a solution based on physics one does not agree with? I suspect that geocentrists don't understand the work of Lense and Thirring at all.

R. Sungenis: This is one of those arguments which forces me to bring my hand up to smack my forehead. First Danny admits that his own belief in General Relativity allows for a geocentric universe. So, HIS OWN science has already defeated his stand against geocentrism. But instead of taking the blame for that eventuality, Danny tries to blame me for using Danny's science to show that Danny is defeated at the get-go.

Second, although we don't use all the tenets of General Relativity, we do use some of them, since they fall under the category of "the General Principle of Relativity." In the beginning of science, there was what we call "Galilean Relativity," which was based on the relative geometric motion of objects on earth, which we have all experienced at some point. But by the time of Mach, however, we developed "Dynamic Relativity," which holds that two differing geometric systems (e.g., a rotating earth in a fixed universe as opposed to a rotating universe around a fixed earth) are dynamically equivalent, that is, the forces that control one of the systems have counterpart forces in the other system. Allow me to quote some physicists on this matter:

"...we can take either the Earth or the Sun, or any other point for that matter, as the center of the solar system. This is certainly so for the purely kinematical problem of describing the

planetary motions. It is also possible to take any point as the center even in dynamics, although recognition of this freedom of choice had to await the present century.”³⁸

Notice that Hoyle makes the distinction between “kinematics” and “dynamics.” In other words, it is not just relative motion that allows us to have the possibility of either a geocentric or heliocentric system, it is also the actual forces involved, the forces that push or pull the celestial bodies, that allow one system or the other.

Now, the quote below comes from Max Born, a popular physicist in the 20th century. He talks about the fact that General Relativity allows for a geocentric universe, which is what Danny must also believe since he supports General Relativity. As opposed to Danny, however, notice how honest Born is with the facts from his own science:

“...Thus we may return to Ptolemy’s point of view of a ‘motionless Earth.’ This would mean that we use a system of reference rigidly fixed to the Earth in which all stars are performing a rotational motion with the same angular velocity around the Earth’s axis...one has to show that the transformed metric can be regarded as produced according to Einstein’s field equations, by distant rotating masses. This has been done by Thirring. He calculated a field due to a rotating, hollow, thick-walled sphere and proved that inside the cavity it behaved as though there were centrifugal and other inertial forces usually attributed to absolute space. Thus from Einstein’s point of view, Ptolemy and Copernicus are equally right. What point of view is chosen is a matter of expediency.”³⁹

Now, before I move on, allow me to address Danny’s figure skater. Although Danny is correct to say that Mach used the universe/stars as the absolute reference frame from which the spinning skater’s arms would rise, that is in the heliocentric version of Mach’s Principle. The geocentric version says that if the girl were in the center of the universe, and the universe/stars were rotating around her, and rotated fast enough, then the forces created by that rotation will raise the arms of the girl. This is called dynamic equivalence, and it is the basis for Einstein’s General Relativity, and it is the principle behind geocentrism. As the universe rotates by its angular momentum, it creates the three inertial forces, centrifugal, Coriolis and Euler, which all work together and keep all the celestial objects in their positions and rotating daily with the universe, and Einstein agreed with this dynamical process for a geocentric universe.

There is one other issue we need to reveal before we move on, which concerns Isaac Newton’s system. We’ll get a hint of it in the next quote from physicist Dennis Sciama:

“Whether the Earth rotates once a day from west to east, as Copernicus taught, or the heavens revolve once a day from east to west, as his predecessors believed, the observable phenomena will be exactly the same. This shows a defect in Newtonian dynamics, since an empirical science ought not to contain a metaphysical assumption, which can never be proved or disproved by observation.”⁴⁰

³⁸ Fred Hoyle, *Nicolaus Copernicus: An Essay on his Life and Work*, p. 82. Also from the same book: “Today we cannot say that the Copernican theory is “right” and the Ptolemaic theory is “wrong” in any meaningful sense. The two theories are...physically equivalent to one another” (*ibid*, p. 88).

³⁹ Max Born, *Einstein’s Theory of Relativity*, 1962, 1965, pp. 344-345.

⁴⁰ Quoted from Dennis W. Sciama’s, *The Unity of the Universe*, 1961, pp. 102-103.

In other words, Sciamia is saying that both the geocentric and heliocentric systems are viable, but if someone picks one of them as the true system and says the other is false, yet he can't prove his preference by the mathematics or the physics of his system, then his system has a defect. A science that is supposed to be based only on proven facts cannot make a metaphysical leap and choose the system that he visually prefers.

Newton's defect was that he made the metaphysical leap that the universe was absolute, that is, it didn't move and was infinite. He needed this assumption to make his physics work, such as his famous equation, $F = ma$. In this equation, let "F" represent the gravity of the sun, let "m" stand for the mass of the planet, and "a" stand for the movement of the planet around the sun to escape the sun's gravity. Newton maintained that the momentum or inertia of the planet wants to go off in a straight line away from the sun but the sun's gravity pulls the planet inward, and the result is that the planet travels in a circular or elliptical path around the sun. It all sounds good, so far. Upon further inspection, however, we find that all this can take place only if the background, the universe, is fixed and doesn't move, and Newton had to assume this was the case, otherwise he wouldn't be able to measure a straight line much less explain how his system worked.

Sciamia is saying that Newton cannot make such assumptions for his system, at least not to the exclusion of other systems (e.g., the geocentric). As it stands, if we do not assume the universe is absolute but can move (e.g., rotate), then the dynamics of $F = ma$ will need to be altered. For example, the centrifugal force that Danny called "fictitious" will no longer be fictitious, it will be a real force. The Coriolis will also not be "fictitious" but a real force. In the end we will have $F = ma + \text{centrifugal} + \text{Coriolis} + \text{Euler}$. Hence the reason we have the "bulge" of the earth at the equator is because of the centrifugal component of the above equation; and the reason we have hurricanes rotating counter-clockwise in the northern hemisphere and clockwise in the southern hemisphere is because of the Coriolis component of the above equation.

D. Faulkner: Supposed Biblical Arguments for Geocentric Theory

Perhaps the central biblical argument that geocentrists make is Joshua 10:12–14. This is not new. This was one of the few biblical passages that Copernicus' and Galileo's critics used, and it was the one biblically based argument that Tycho Brahe made. Joshua 10:12–14 reads:

At that time Joshua spoke to the LORD in the day when the LORD gave the Amorites over to the sons of Israel, and he said in the sight of Israel,

"Sun, stand still at Gibeon, and moon, in the Valley of Aijalon." And the sun stood still, and the moon stopped, until the nation took vengeance on their enemies.

Is this not written in the Book of Jashar? The sun stopped in the midst of heaven and did not hurry to set for about a whole day. There has been no day like it before or since, when the LORD heeded the voice of a man, for the LORD fought for Israel.

Most Christians today understand that this miracle was accomplished by cessation of the earth's eastward spin and restarting of that spin. This would introduce complications, such as momentum change. For instance, some critics charge that if the earth stopped spinning, we would continue flying eastward at hundreds of miles per hour with respect to the now stationary

earth. Of course, this overlooks the fact that if God intervened to stop the earth's rotation, He easily could have stopped our rotation as well. A few geocentrists even join in with this criticism. It never occurs to them that, given their application of Mach's principle discussed above, the same criticism applies to them. But geocentrists will have none of this. They insist that the command was given to the sun (and moon) to stop moving, not the earth. And how could the sun stop moving if it weren't moving in the first place? Geocentrists piously assert that since the Bible says that the sun stopped moving, then it must mean the sun stopped moving. Otherwise, the Bible is wrong.

R. Sungenis: Notice how Danny sidesteps the face value or literal words of Joshua's account by saying, "Most Christians today understand that this miracle was accomplished by cessation of the earth's eastward spin and restarting of that spin." Regardless of his well made point that the momentum issue would apply to both systems and thus it would take an intervention from God to minimize it, the fact is that right from the get-go Danny has revealed that "most Christians" reject the literal language of Joshua 10 that the sun and moon stopped. This cavalier attitude toward Scripture is astounding, at least for those who, in other cases, pride themselves on "reading the Bible literally." Obviously, Scripture could have said, "And so God stopped the earth from rotating," if that was indeed what happened, but it appears that "most Christians," according to Danny, would rather make God state something that is not exactly true (e.g., "the sun and moon stopped in the sky) than admit to the possibility of geocentrism. What a hold Henry Morris still has on them. He speaks from the grave and they listen in absolute obedience, even if it means tarnishing God's literal words, and, more or less, making God tell a scientific falsehood.

D. Faulkner: Most Christians respond to this argument by stating that Joshua's account employs phenomenological language, that it records what was seen, not necessarily exactly what happened in minute detail,

R. Sungenis: Of course. It's easy to wave the wand of "phenomenological language" over verses we don't want to take at face value. Liberal Christians do it all the time, especially for those verses in Genesis 1 that speak about creation. When the passage conflicts with the "science" we have settled upon, the first thing that goes is a literal reading of Scripture, not the "science." This is the whole reason that I attack Danny's position from the "science" he holds as true, for it is the only way that Danny will be able to see that his interpretation of Joshua 10 is off kilter.

The other way is to show Danny that he's an exegetical hypocrite, since the verses about creation in Genesis 1 are those he holds as holy and sacrosanct and never would accuse God of using "phenomenological language." Danny has been working for *Answers in Genesis* for many years, and they pay him good money for taking everything in Genesis 1 literally, at face value. But they also pay him good money not to interpret Joshua 10 by the same literal hermeneutic. The hypocrisy is outstanding, but blind men can't see their own hypocrisy.

D. Faulkner: otherwise, Joshua 10:12b–13a might read,

"Earth and everything on earth stop rotating so that the sun appears to stand still above Gibeon, and moon, over the Valley of Aijalon." And the earth and everything on it stopped rotating so that the sun appeared to stand still, and the moon appeared to stop, until the nation took vengeance on their enemies.

No one talks this way, and if such a miracle happened today, even heliocentrists who believe in a rotating earth would not record it this way. Instead, we'd probably describe what happened pretty much the way Joshua recorded it, even though we aren't geocentrists.

R. Sungenis: Yes, Danny is probably correct. In fact, Scripture does the same thing. When it says, "the sun rose," it is phenomenological language. Why? Because even in the geocentric system, the sun doesn't physically rise. Rather, it translates horizontally around the earth. The only perspective it can be said that the sun "rises" is when one is watching the sun move above the earth's horizon. So, even the geocentrist will admit that Scripture sometimes uses phenomenological language.

But here's the catch. Sometimes Scripture does not use phenomenological language, and one of those times is Joshua 10. Why? It has to do with something that Danny left out of his analysis, whether intentionally or inadvertently. Note above that Joshua 10:12-13 says:

"Sun, stand thou still at Gibeon, and thou Moon in the valley of Aijalon." And the sun stood still, and the moon stayed, until the nation took vengeance on their enemies.

Notice that it is BOTH the sun AND the moon that stand still for a whole day. But if this can be explained, as Danny claims, by realizing that the earth can be stopped from rotating, this is scientifically false, for if the earth stopped rotating in the heliocentric system, the moon would still move across the sky. In fact, since the moon is said to be over the Valley of Aijalon, which is close to the Mediterranean Sea, if the earth stopped rotating then in about five hours the moon would dip into the Mediterranean Sea and be gone from Joshua's sight long before 24 hours transpired. The mere fact that the moon would continue to move, no matter how far or fast, means that either Joshua 10:12-13 is telling us a fib, or Danny Faulkner is telling us a fib. Hence there is good reason why Joshua 10 is not "phenomenological language" since if it was then God would be lying to us.

D. Faulkner: Therefore, this passage hardly teaches geocentrism. Also keep in mind that geocentrism usually refers to the earth's revolution, not its rotation. In that context, this clearly is not teaching geocentrism.

R. Sungenis: Notice how Danny tries to cover his tracks. Like a murderer who tries to wipe up the blood stains and pick up his empty gun casings so the police can't identify him, so Danny does with Joshua 10. No, geocentrism does NOT "usually refers to the earth's revolution, not its rotation." As I said before, I don't know any geocentrists who teach the earth rotates since they know, or should know, that a rotating but non-revolving earth cannot explain the seasons. The geocentrists of import, that is, van der Kamp, Bouw, and myself, teach, and have taught for the last 60 years, that the earth does not revolve or rotate, as did the Catholic Church when it condemned Copernicanism as a formal heresy in 1616 and 1633.

D. Faulkner: But perhaps the phenomenological answer gives too much away. It tacitly agrees with the geocentrists on the concept of absolute motion; it just disagrees with what the standard of absolute rest from which absolute motion can be measured is. Keep in mind how tricky the concept of motion is. All we can measure is relative motion. While the idea of absolute motion has been around for a very long time and has been discussed at great length, there still is no totally satisfactory answer to the question of what the absolute standard of rest is. Given this reality, any relative motion is very literal. Hence, I frequently speak of the sun rising, moving

across the sky, and setting each day, and I also describe the stars moving around the north celestial pole each night, even though I know that all of these are caused by the earth's rotation. I'm not speaking in a phenomenological sense, because in a very literal way the sun and stars go through these motions. Again, Joshua 10:12–13 hardly teaches geocentrism.

R. Sungenis: As I teach in *Galileo Was Wrong*, every system uses an absolute, even though many of them talk incessantly about the universe containing only “relative motion.” Why? Because they all need an absolute in order to measure and understand the rest of the universe. Copernicus used “fixed stars” as his absolute, as did Galileo and Kepler. Newton used space and time as his absolute. Lorentz used aether as his absolute (which is one reason why Einstein didn't want to use Lorentz's non-moving aether). Einstein used the speed of light as his absolute. The Steady State theory used infinity as its absolute. The Big Bang uses universal expansion as its absolute. Some, like George Ellis, even use the CMB as the absolute. Modern Science at large uses the Copernican Principle as its absolute. So, don't let anyone kid you. They all depend on an absolute.

So when Van der Kamp, Bouw, and I come along and remind Christians that God has given us an absolute by making the earth the unmoveable dynamic center of the universe, why would Christians balk at this information? They do so because someone on high who pays their salaries has told them not to do so; and the world has convinced them that the Bible just can't be right on this issue. As a result, people like Danny Faulkner would rather live in a dichotomy than admit his biblical hermeneutic for creation passages is totally at odds with his hermeneutic on geocentric passages.

D. Faulkner: Another important passage to geocentrists is the account of Hezekiah's sundial (2 Kings 20:8–11). The argument seems to be that the sun is described as moving. However, that is not what the passage says. The sun is not even mentioned. Rather, the passage states that the shadow of some unnamed object went back. The most obvious inference is that the sun moved backward in the sky too. But this is an inference, and hence the claim that this passage says the sun moved backward is to read into the text. The parallel account in Isaiah 38:7–11 does mention the sun, and it says that the sun went down. This seems to indicate that this event occurred in the afternoon rather than morning, when the sun would have been rising in the sky. Interestingly, the Hebrew word translated “down” here is different from the Hebrew word used elsewhere when it refers to the sun going down (setting), as in Genesis 15:12, 17. Thus, the intended meaning is that the sun reversed its track of going downward in the sky, not that the sun was about to set when this happened. Does this mean that Isaiah 38:7–11 demands that the sun absolutely is in motion? Per the discussion above, no. In a very real sense, the sun does move across the sky each day, even if it is the earth's rotation that causes this motion.

R. Sungenis: Notice how meticulous Danny can be in exegeting the text when it is to his advantage to do so. His parsing of the language to the extent that the passage does not even mention the sun is something that not even I would do in order to explain this passage. I would just assume that only the sun could be the object in view. Be that as it may, I wish Danny had been as meticulous about the details of the text when he was interpreting Joshua 10. If so, he would have seen that BOTH the sun AND the moon were stopped in the sky and that a cessation of a rotating earth would not have fulfilled what Joshua 10 requires.

D. Faulkner: Other verses that geocentrists use contain references to the sun rising or setting. For instance, the book of Genesis mentions sunset three times (Genesis 15:12, 15:17, 28:11) and

sunrise twice (Genesis 19:23, 32:31). The geocentric argument is that since all these passages say that the sun rises or sets with no mention of a moving earth, then the sun must literally move. The fear is that if the sun does not literally rise and set, then many more things in the Bible must not be literally true either, which undermines the authority of Scripture. Again, because of the nature of motion described above, the sun literally rises and sets each day, even if that rising and setting is a consequence of a rotating earth. But is such a hyperliteral interpretation of verses that mention sunrise and sunset warranted? Other verses speak of the sun growing hot (Exodus 16:21; 1 Samuel 11:9; Nehemiah 7:3), yet geocentrists would not insist that the sun literally increased its temperature. Rather, they would say it means that as the sun moved higher in the sky, the air temperature rose. For that matter, such a hyperliteral approach to 2 Samuel 12:11 would require that the sun can see. Obviously, even the most literal of the geocentrists abandon their hyperliteral hermeneutic at some point.

R. Sungenis: I've already conceded that Scripture sometimes uses phenomenological language, so Danny's question is now moot.

D. Faulkner: Then there are verses that say that the earth does not move (e.g., 1 Chronicles 16:30; Psalm 93:1, 96:10). For instance, 1 Chronicles 16:30 reads,

...tremble before him, all the earth; yes, the world is established; it shall never be moved.

Surely, the geocentrists reason, if the Bible says that the earth is not moved, then it must not move. But there are other verses in which the psalmists say that he or other people do not move (e.g., Psalm 15:5, 16:8, 30:6, 62:6). In the KJV, Psalm 62:6 says,

...He only is my rock and my salvation: he is my defence; I shall not be moved.

The Hebrew word used for people not being moved in these verses (*mot*) is the same word used to describe the earth as not moving. Therefore, the same logic for one must apply to the other— if the earth remains at rest, then the people described as not moving must have remained at rest too. Once one admits that the use is not woodenly literal in some verses (referring to people), then the argument that it must mean physical immovability in the other verses (referring to the earth) unravels.

R. Sungenis: No it doesn't, that is, if one pays attention to the context of each passage. Psalm 15:5; 16:8; 30:6 and 62:6 are placed in a soteriological context and thus the Hebrew word *MOT* refers to them as not being moved away from their salvation. The passages are not talking about physical movement from one place to the other. But *MOT* has an even more precise meaning and application.

The Hebrew: **מוֹחַ** (*mōht*) appears 39 times in the Old Testament, 20 in the Psalms. The Qal form appears 13 times, 23 times in the Niphal, and one each in the Hiphil and Hithpael. It can refer to things as simple as slipping with the foot (Dt 32:35; Ps 17:5; 38:16-17) to moving the earth (Ps 82:5; Is 24:19). *Mōht*, in the physical sense, refers to the transition from a state of rest to a state of movement; in the figurative sense, from a state of stability to a state of instability. Of all the words in Hebrew referring to movement (e.g., **חָפַץ**, **חָרַץ**, **נָדַד**, **נוּע**, **פָּוַק**, **רָחַף**, *et al*), **מוֹחַ** (*mōht*) is used when any, even the slightest movement, is in view. Hence, it can refer to a shaking or vibration as well as a change of location. Hence, in this

etymological light, Danny's passages (Psalm 15:5, 16:8, 30:6, 62:6) actually mean that the Christian will not be moved in the slightest from his salvation because of the Lord's care over him.

Regarding the earth passages Danny mentioned (1 Chronicles 16:30; Psalm 93:1, 96:10), there is a different context and thus a different application. The point of these passages is to portray the Lord's majesty and strength, as a king who wears his royal robes signifies that he reigns supreme over all the land and has subdued all his enemies. One specific display of the Lord's power is that he has established the world so that it cannot move. Like the throne of a king that does not move unless by his order, so the world has been set and will not be moved.

Although the comparison between the strength of God and the stability of the world is quite evident in the passage, there are very few options available regarding the meaning of the "establishment of the world" if one seeks to make a legitimate comparison to God. The world cannot refer to the political machinations of the nations, for they shift quite frequently. It could not refer to the whole universe, since if the universe were moved, to where would it move? The best way the Psalmist's analogy can have its intended effect is if an object exists that is unmoved in the midst of all other objects that are moving. For example, if the Psalmist were referring to an unmoving Earth, then the image displayed by Ps 93:1 would be most accurate, for the Earth would be the only body at rest in the midst of a sea of moving bodies in the heavens. The Earth would be the only foundation point; the only immovable object, and thus the best example to picture of the immutability of God himself. More to the point is that Ps 93:2 adds that God's throne is also "established."⁴¹ Logically, if his throne does not move then the world cannot move. The intended imagery would be identical to passages that call the Earth the "Lord's footstool," since footstools are understood to be at rest, not moving.⁴²

Some might object that the phrase "shall never be moved" could also be translated as "shall never be shaken." If that is the case, then one could argue that a "shaking of the world" could have some political overtones. This might be true, except for the fact that the political systems of the world are inherently unstable, and thus they would not make a good comparison in displaying the strength and throne of God almighty. Conversely, the physical world, marked as it is by times and seasons that have been repeating themselves in exact precision for eons, is the only possible "world" that could be compared to the infinite stability of God.

In actuality, if the proper translation were "shaken" rather than "moved," this would only enhance the imagery of an immobile Earth, for this interpretation would require that the Earth be so firm in its position

⁴¹ Ps 93:1 and 93:2 use the same Hebrew word for "established," the word כּוּן (*kun*), which appears over a hundred times in the Old Testament in most of the Hebrew tenses. In vr. 1 it is utilized in the Niphal imperfect and in vr. 2 in the Niphal participle, which is the simplest of the passive tenses. Although *kun* includes the concept of an original founding date (e.g., "the building was established in 1955"), it also includes the concept of stability and longevity (e.g., "the rock of Gibraltar was established"). *Kun* also refers to rest or immobility (Jg 16:26: "and Samson said to the lad who held him by the hand, 'Let me feel the pillars on which the house rests'"; 16:29: "And Samson grasped the two middle pillars upon which the house rested"; Er 3:3: "They set the altar in its place").

⁴² Is 66:1; Mt 5:35. In all of these passages the notion of "rest" for the Lord's footstool is emphasized: Is 66:1: "Heaven is my throne and the earth is my footstool; what is the house which you would build for me, and what is the place of *my rest*?"; 1Ch 28:2: "I had it in my heart to build a *house of rest* for the ark of the covenant of the Lord, and for the footstool of our God"; Ps 132:7-8: "Let us go to his dwelling place; let us worship at his footstool! Arise, O Lord, and go to thy *resting place*, thou and the ark of thy might" (see also Ac 7:49). "Rest," of course, refers to motionlessness, which is appropriate in the Earth's case only if it is not moving through space.

that it would not only be prohibited from rotating or revolving, but it would also be prohibited from shaking. As we learned in the science portion of this work, the Earth is held in space by the combined torque of the whole universe. To move the Earth would require that it overcome the combined torque of the universe. Consequently, we can see why this particular Hebrew word (*mōht*) for “move” or “shaken” was chosen, since it includes the Earth’s resistance to even the slightest outside movement. If vibration occurs, it will occur within the internal structure of the Earth but not with respect to the Earth’s position in space. In fact, the reason earthquakes occur is that the internal movements within the Earth are rubbing against the external forces that are keeping the Earth immobile in space.

The only other detail of Ps 93:1-2 regards the meaning and usage of the word “world.” As it stands, the Hebrew consistently uses the term in reference to the earth, not the universe at large.⁴³ Hence, it is the Earth alone that is kept immobile, not the universe.

Here is another earth passage. Psalm 96:9-11 says:

⁹Worship the Lord in holy array; tremble before him, all the earth! Say among the nations, “The Lord reigns! Yea, the world is established, it shall never be moved; he will judge the peoples with equity.” Let the heavens be glad, and let the earth rejoice; let the sea roar, and all that fills it;

Here again the Hebrew כֹּון *kun* and מוֹחַת *mōht* appear in tandem. Although it would be proper to interpret *kun* (“established”) and *mōht* (“moved”) as words conveying the idea that the Lord’s reign over the nations is such that it will be uninterrupted and always produce justice, the unavoidable dimension of this passage is that the Lord’s reign is being compared to the already known fact of the world’s immovability, and it is the Hebrew poetic form that brings these two dimensions into comparison. Without the poetic form, the passage could have simply stated: “The Lord’s reign is established and it shall never be moved, he will judge the people with equity,” and the salient point of the Psalmist would have been accomplished nonetheless. But within the poetic form, the Psalmist is drawing on facts he and other authors have stated elsewhere about the world’s establishment and immobility, such as Ps 104:5: “Thou didst set the Earth on its foundations, so that it should never be shaken” or 1Ch 16:30: “tremble before him, all the Earth; yea, the world stands firm, never to be moved.” In other words, he is using the scientific fact of the Earth’s motionlessness as the basis for the analogy as to why the Lord will always reign and judge with equanimity. Both states will always be true: (1) the Lord will reign with equity, and (2) the world will never move. One verifies and supports the other. If one fails, the other fails also.

We can imagine how difficult it would have been for the Psalmist to prove his point if, indeed, the world was constantly moving through space. If it were a fact that the Earth was moving, the Psalmist would, instead, have had to make a comparison between the stability of the Earth’s orbit and the stability of the Lord’s reign. In actuality, however, he cannot do so, because previously he had made a comparison between the stability of the Lord’s reign and the orbit of the sun (*e.g.*, Ps 19:4-14), and thus it would not

⁴³ Hebrew: תֵּבֵל (*tebel*) appears 38 times in the Old Testament. It is often a poetic synonym of אֶרֶץ (*erets*) referring to the “earth” (*e.g.*, 1Sm 2:8; Ps 33:8; 77:18; 90:2; Is 34:1; Lm 4:12), but in non-poetic contexts it sometimes has a larger focus than the physical world and may include the more abstract notions associated with existence, such as the totality of human consciousness (*e.g.*, Is 24:4; 26:9). In the non-poetic passages that *tebel* is used without *erets*, *tebel* always refers to the earth or that which is inhabited by mankind (*e.g.*, 2Sm 22:16; Is 13:11; 14:17, 21; 18:3), not to the universe at large.

be permissible now to compare the Lord's reign to the orbit of the Earth, since obviously both the sun and the Earth cannot be orbiting around each other.⁴⁴

On a theoretical basis, one might object that since the Psalmist regards the sun as orbiting the Earth he could just have easily regarded the Earth as orbiting the sun, since both systems are equivalent, geometrically speaking. But although the geometrical reciprocity between the two celestial models is true, the Psalmist is working from a perspective of propositional truth that will only allow him to appeal to the *actual* celestial model and force him to discount its geometric or mathematical equivalent. That is, since the Psalmist's major point concerns the eternal stability of God's reign, he can only communicate that important truth analogously if he knows which celestial model is actually true, the heliocentric or the geocentric. Any false information will necessarily negate his analogy.

To say it another way, although one could argue that from a relativistic perspective the Psalmist has the option of using the stability of an orbiting Earth as the analog to the Lord's stable reign, the fact remains that he, in the general scope of his Psalmic writings, chooses an immobile Earth (Ps 96:10) and a moving sun (Ps 104:4-6). This choice is significant, since in order to make valid the analogy he is proposing the Psalmist must base it on an incontrovertible scientific fact. If he chooses the wrong celestial model, his very purpose in creating the analogy is defeated, for the Lord's reign cannot be compared to something fictitious. Either the Earth is fixed and the sun moves around it, or the sun is fixed and the Earth moves around it. Both cannot be true, and the Psalmist must adopt the correct one in order for his analogy to be genuine.

In retrospect, we can see why the Psalmist does not state cosmological truths as mere brute facts. Rather, to make the strongest argument, he purposely compares the immobility of the Earth to the unshakable reign of the Lord, since in serving as witnesses to one another, both must be absolutely true, or, consequently, both are absolutely false. Similar to instances in which God swears to Himself because he can find no one greater to serve as a witness (*cf.* Hb 6:13-18), so here in the Psalms we have the Lord comparing his unflappable divine justice to a divinely-set immovable object.

Some might object, however, that passages such as Ps 82:5 ("They have neither knowledge nor understanding, they walk about in darkness; all the foundations of the earth are shaken") contradict the above conclusion that the Earth does not shake. A careful comparison, however, will show that Ps 82:5 specifies that the "foundations" of the Earth, not the Earth itself, are shaken, while Ps 96:10 says that the *world*, in its totality, will not be shaken or moved.⁴⁵ As noted earlier, the "foundations" of the Earth are part of the inner structure of the Earth which lie beneath its surface. The foundations may shake but they will not move the Earth itself out of the position in space God has given it.

⁴⁴ Moreover, mutual orbiting around a common center of mass will also not satisfy the Psalmist since in that case neither the sun revolves around the Earth nor the Earth revolves around the sun.

⁴⁵ The same emphasis on the "foundations" is noted in the following passages: Ps 18:7: "Then the earth reeled and rocked; the foundations also of the mountains trembled and quaked, because he was angry." Similar rationale can be applied to Ps 46:2; 60:2; 68:8; 97:4; 99:1; 104:32.

D. Faulkner: And what about a verse that says the earth shall be moved? In the KJV, Psalm 99:1 reads,

The LORD reigneth; let the people tremble: he sitteth between the cherubims; let the earth be moved.

To be fair, the Hebrew word translated “moved” here is *nut*, not *mot*. However, in at least the King James Version (the translation preferred by many geocentrists), there is no distinction. The Hebrew word *mot* has the meaning of totter, shake, or slip. In the context of the earth not being moved, it means that the earth will not totter, shake, or fall from its appointed course. This is what these verses about the earth not being moved are talking about—the earth is stable; it is not tottering or failing in its appointed course. Only with a hyperliteral hermeneutic could one conclude geocentrism from these verses.

R. Sungenis: As I noted in my dealing with Psalm 96:10 above, this Psalm (96:9-11), is speaking about the disruptions that occurs inside the Earth intermittently, not the cessation of an assumed rotation on an axis or revolution around the sun.

D. Faulkner: Conclusion: Is Geocentric Theory True? Does the Bible teach or demand geocentrism? Hardly. Does good science indicate that the earth is motionless? Certainly not.

R. Sungenis: As we have seen throughout this debate, I’m sorry to say that Danny Faulkner is a biased scholar who knows neither the Bible nor the science well enough to defend his position or to falsify geocentrism.

D. Faulkner: Then why do some Christians believe otherwise? Much of the motivation of geocentrists stems from a sincere, but misguided, desire to honor Scripture. We have seen the assault on the Bible from the assumption of evolution and billions of years required by evolution. This flies in the face of the cosmogony and early history of the world given to us in the first few chapters of Genesis. We at Answers in Genesis have been leading much of the defense and counterattack in this struggle, so we understand this desire. However, geocentrists err in claiming that the assault on Scripture began with heliocentrism, for the Bible does not teach geocentrism, despite what many critics claim.

R. Sungenis: This is an example of Danny’s, and *Answers in Genesis*’, blindness. They interpret Genesis 1-2 as literally as they can to fight evolution, and they amass all the science data they can to back it up, but they continue to denounce that same hermeneutic when it comes to passages on geocentrism that are as perspicuous as they claim the creation passages are.

We already saw what Danny did to Joshua 10. He didn’t even realize that the moon was part of the exegesis of the passage! He then totally misconstrued the Hebrew word *MOT* and totally avoided the context.

As for the science, Danny spent most of his time complaining that geocentrists use HIS OWN science to show that geocentrism is a viable scientific position; but yet refused to distinguish between General Relativity and the General Principle of Relativity.

As for Newton, it appears that Danny has no concept of the flaws in Newtonian mechanics that depends on assuming an absolute universe as its basic premise.

Danny also has no clue about the damage the 1925 Michelson-Gale experiment does to heliocentrism, nor does he understand or even acknowledge the ramifications of the 1887 Michelson-Morley experiment.

He never mentions Arago, but harps on Fizeau without understanding what the Fizeau experiment actually showed; and he sees no problem with Fresnel talking about an ether drag in a telescope lens that, conveniently, is just enough to make it look like the earth isn't moving.

He also seems to think there is no problem in Airy's experiment being called a "failure," and that is because, from what he has written in this essay, Danny doesn't understand the implications of that failure. The only scientist who has even attempted an answer to Airy is Wolfgang Pauli, and he didn't come close to solving the dilemma.

Danny is also misled about the Maxwell experiment and the Lorentz transform. And to top it all off, Danny apparently sees no problem in Einstein eliminating aether in the Special Relativity theory, but taking back an aether in the General Relativity theory. He is caught between a rock and a hard place on that one.

To sum up, I would say I've never seen so much incompetence from someone who purports to be a scholar with a PhD in Astronomy.

D. Faulkner: That is ironic, because in their zeal, geocentrists have unwittingly accepted the false claims of Bible skeptics, such as Augustus De Morgan (1806–1871) and Bertrand Russell (1872–1970), that the Bible is geocentric.

R. Sungenis: Here you can see how Danny twists the evidence to his own favor. Instead of realizing that these two men, godless as they may be and who have no axe to grind or popularity to attain, can easily see that a literal reading of the Bible ends up with geocentrism. That cuts Danny to the quick because if a secular person can easily see the Bible teaches geocentrism, then why can't Danny? That's because Danny has decided he's NOT GOING to see geocentrism in the Bible. It's as simple as that. The moment he admits the possibility of geocentrism is the moment he loses his job with *Answers in Genesis*.

D. Faulkner: In their zeal, geocentrists employ a hyperliteral hermeneutic that ignores the various genres of Scripture.

R. Sungenis: And the liberal Christians and secular evolutionists that Danny opposes say the same thing about Danny's "hyperliteral hermeneutic" of Genesis 1-2. At least I'm consistent, since I used the same hermeneutic for both the creationism passages and the geocentric passages, just as the Church Fathers did in absolute consensus.

D. Faulkner: Many of their arguments come from poetic passages, which use a variety of nonliteral devices. It is very dangerous to base theological positions solely or mostly on references from the poetic books that employ these literary devices.

R. Sungenis: First, Joshua 10 is not a poetic passage, but we saw how Danny misconstrued the whole passage because he left out the moon. I have a feeling that God added the moon just for people like Danny Faulkner.

Second, of course the Psalms use a lot of "nonliteral devices," but that doesn't make them any less true! My goodness, most of the passages from the OT that are quoted in the NT to verify the truth of Christ

come from the poetic Psalms! The next highest is Isaiah, which also uses poetic language. In other words, Danny is going to use any excuse he can throw against the wall to see if it will stick.

D. Faulkner: And geocentrists very conveniently shed their hyperliteral hermeneutic when it suits them. This is inconsistent.

R. Sungenis: Like where? It's easy to throw out accusations, much harder to prove them. Danny needs to give at least one example of what he is talking about. He needs to name one place I haven't used a literal hermeneutic when it wasn't impossible to use it. Conversely, Danny is famous for having two hermeneutics: A literal one for the creationism passages in Genesis 1-2; but a figurative one for the geocentric passages in Joshua 10 and the Psalms and elsewhere.

D. Faulkner: Furthermore, geocentrists confuse the differences between historical/origin science with experimental/observational science. The origin and history of the world are historical/origin science, while the question of the earth's motion is experimental/observational science. While we can't test the former in the usual techniques of science, we certainly can test the latter.

R. Sungenis: Really, Danny? Creationists have to go into the science of radiometry and make interpretations of the geologic column, both of which require experiment and observation. They have to examine bone fragments to see if they are real or fake. They have to examine and then explain why dinosaur bones have collagen, red blood cells, and blood vessels. They have to explain how a human foot print can be next to or even superimposed on a dinosaur print.

The actual truth here is that no matter what "experimental/observational" science is given to Danny to show that geocentrism is viable, he refuses to accept it, and then ends up misconstruing every single piece of experimental evidence given to him. At this point I can guarantee, for example, that Danny doesn't know whether to side with Special Relativity that has no aether, or with General Relativity that has an aether. But he'll use both theories when either one of them is convenient for him.

D. Faulkner: Geocentrists are just as selective with regard to the science as they are their biblical studies. They pick and choose which experimental results they want to talk about.

R. Sungenis: Like what, Danny? Care to back that up with some evidence? What experiment have we ignored? Name just one.

D. Faulkner: Geocentrists generally reject general relativity, not realizing that much of their argument relies upon general relativity.

R. Sungenis: We've already dealt with this fallacy of Danny's. We don't reject the Principle of Relativity in General Relativity. It just so happens that the Principle of Relativity overlaps to some extent with General Relativity.

But Danny has a bigger problem to solve. He believes in all that General Relativity claims, and General Relativity says geocentrism is a viable scientific position, but Danny doesn't accept that tenet of General Relativity, but then has the gall to accuse us of "not following General Relativity."

D. Faulkner: I hold geocentrists partly responsible for the recent rise in the flat-earth movement. Flat-earthers have clearly stolen many of their arguments from geocentrists. Flat-earthers

extend a geocentric talking point, that the assault on Scripture began with Copernicus rather than Darwin, but the flat-earthlers trace the problem back earlier to believing the earth is a globe. Flat-earthlers also have extended the hyperliteral interpretation of geocentrists just a little bit. It is ironic that there probably are far more flat-earth geocentrists now than globe-earth geocentrists. In many respects, the flat-earth movement has subsumed the geocentric movement.

R. Sungenis: Until if and when Danny decides not to be an exegetical hypocrite by bifurcating his biblical hermeneutic into literalizing creationist passages and figuratizing geocentric passages, then he's not going to get a hearing from the flat-earthlers. They can spot an exegetical hypocrite a mile away. Conversely, I've written a 750-page book titled, *Flat Earth/Flat Wrong* (www.flatearthflatwrong.com), which uses the literal hermeneutic of Scripture to show the flat-earthlers that they haven't been as thorough with the Bible as they purport to be. In fact, they take words out of context; don't do complete etymologies on words; and make up things to suit their own agenda, just like Danny does.

D. Faulkner: Given this and the possible lack of a leader for the globe-earth geocentric movement, will the "classic" modern geocentric movement survive?

R. Sungenis: Notice the dig here? In his view, there is no "leader for the globe-earth geocentric movement" even though I'm the only geocentrist who has had a live debate with one of the flat-earthler's best, Rob Skiba, and even though I wrote a 750-page tome against the flat earthers. And even though I did a dissertation on geocentrism; wrote a dozen books on geocentrism; made five movies on geocentrism, along with a major theatrical release; had many debates on geocentrism with competent critics; and wrote countless critiques of Danny Faulkner and his colleagues, still, they refuse to recognize me. Danny mentioned my name once in this essay, saying that I was "the most noticed geocentrist today," but I can tell by Danny's poor arguments that he has either not read *Galileo Was Wrong* or *Geocentrism 101*, or he refuses to engage with the arguments from those two books and instead created his own strawman throughout this essay.

So here I make a challenge to Mr. Faulkner for an oral, public, and moderated debate over the issue of geocentrism. He can contact me at any time at sungenis@aol.com

Robert Sungenis

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